RAILWAY AGE

Air-Conditioning in Transportation

There is occurring throughout the world the greatest revolution in conditions and means of transportation that has occurred since railroad transportation was introduced. For almost a century the railroad, because of the superiority of its service in proportion to the cost of rendering it, stood almost unchallenged excepting where it met competition from vessels using the ocean and such inland seas as the Great Lakes. During the last decade its primacy has been more and more boldly challenged by motor carriers on the highways.

Carriers by highway, including the private automobile, have been as successful as they have been in taking traffic largely owing to government discriminations against the railways, but their success has also been due in large measure to the service they have offered, which, in certain respects, has been superior to that of the railways. If their competition is to be met more effectively it must be by great improvements in railway service, both passenger and freight. The making of these essential improvements in service will involve revolutionary changes in railway equipment. Great advances are being made in the development of locomotive power, but these must be constantly supplemented by improvements in passenger and freight cars if the railways are to secure from improved power all the advantages possible.

A Revolutionary Improvement

One of the most important and revolutionary improvements in equipment ever introduced is the recent development of air-conditioning of passenger cars. Probably nobody has yet adequately appraised the effects that it may have upon passenger traffic and earnings. It promises to help the railways to take traffic back, not only from motor buses, and airplanes, but from private automobiles. Air-conditioning is new and therefore still expensive but its cost will decline as it is further developed and its use increases, and the stakes in the field of passenger transportation for which the railways are playing are so enormous that, as compared with them, the cost of any improvements in equipment and service that will help them to hold and win back passenger earnings, are likely to be small. A very small increase in passenger earnings would pay all the fixed charges and maintenance and operating costs of air-conditioning equipment.

Enormous Loss of Passenger Earnings

The passenger earnings of the Class I roads in 1920 were $1,289,000,000, and in 1929, also a year of prosperity, only $874,000,000, a decline of $415,000,000. Comparing two years of depression, they were $1,154,000,000 in 1921, and only $551,000,000 in 1931, a decline of $603,000,000—an amount sufficient to have paid a return of 5 per cent upon almost one-half of the total investment in all railroad property. This enormous loss of passenger earnings is the principal reason why it has become impossible for the railways, with present passenger and freight rates, to earn a reasonable net return in years of prosperity or to come anywhere near earning their fixed charges in a period of depression. The greatest of all the problems of the railways is to get traffic back on the rails, both passenger and freight.

It would be absurd, of course, to claim that air-conditioning of all passenger cars would enable them to recover more than a comparatively small part of the business they have lost; but air-conditioning is one of numerous improvements being developed which will help them to recover and hold passenger business, and if any railway officer doubts that it has great potential value this must be because of lack of experience in traveling in air-conditioned equipment.

Why do so many prefer in summer to use their automobiles rather than to ride on trains for long as well as for short trips? Largely because they dread the heat, noise and dirt to which they are subjected in passenger cars. Only those who have had the experience can appreciate the difference between the effects produced upon a passenger by traveling in non-air-conditioned and in air-conditioned coaches, sleeping cars and dining cars in hot weather. The heat, humidity, noise and dirt of non-air-conditioned cars are irritating and exhausting. The coolness, reduced humidity, quiet and cleanliness of air-conditioned cars are, by contrast, so refreshing and invigorating that instead of the passenger dreading to take a train they make him dread to leave it. Air-conditioning will prove useful in winter as well as in summer. It has

heretofore been impossible satisfactorily to regulate the heat and humidity of cars in cold weather, but air-conditioning can be so used to supplement present heating systems as to make travel by train in winter healthier as well as more comfortable. The greatest merit of air-conditioning is that it maintains constantly a comfortable temperature in all weather, although the possibility that it affords of excluding noise and dirt is hardly second in importance.

Air-Conditioned Trains Versus Automobiles

Motoring, especially in the summer time, has advantages as compared with traveling in non-air-conditioned cars, but equal disadvantages as compared with traveling in air-conditioned cars. Motoring is always subject to much greater hazards than traveling by train. To many persons it is tiring for long distances, and in the summer it is subject to heat, drafts and dirt which are entirely avoided on air-conditioned trains. Excepting for short distances, travel in air-conditioned trains seems bound to be more attractive to many people than travel by motor. Few men traveling entirely on business would, it would seem, deliberately choose the hazards and discomforts of motoring in preference to the safety and comfort of traveling by rail in air-conditioned cars after they had had both experiences. Air-conditioning promises to be a very important means of helping the railways in the future to meet the onslaughts of their most formidable competitor for passenger business, the private automobile.

The progress of air-conditioning of passenger equipment within a short time, and under the most adverse financial conditions, is one of the best answers recently made by railway managements to the charge of lack of progressiveness. The extraordinary increase in travel that has occurred upon most trains that have been air-conditioned indicates that air-conditioning of all passenger cars excepting those used for very short runs or unimportant service will come within a comparatively few years. It is, however, only one of almost innumerable improvements in railway equipment and service that must be made to enable the railroad industry to meet competition. Present and prospective conditions are a challenge not only to railway managements but to the manufacturers of every kind of railway equipment and supplies, for these manufacturers are just as directly in competition with the automobile manufacturing industry as are the railways with the operators of buses and trucks.

National and state legislation should be passed which will establish equality in the terms of competition between the various classes of carriers; but whatever legislation may or may not be passed, competition will continue, and it will have to be met by great improvements in railway physical properties and service if the prosperity of the railways and of the railway equipment and supply industry is to be restored. Manufacturers of railway equipment and supplies as well as the managements of the railways will have to study and help solve all problems presented by present competition if they are to do business successfully in future.

Car Loadings Show Marked Improvement

The statistics of freight car loadings for recent weeks, and especially for the week ended September 3, the latest available, indicate that a real improvement in general business has begun. Comparisons of car loadings in the same weeks of different years and in different weeks of the same year have to be made carefully to exclude the effects of holidays, and especially of seasonal variations. Freight business always is smaller in midsummer than in the late summer and fall, and therefore an increase in the late summer and fall is significant only if it is smaller or larger than the usual seasonal increase. Study of the statistics reveals that there has been occurring recently, and especially in the week ended September 3, a substantially larger than normal seasonal increase. In the four weeks immediately preceding the Labor Day holiday in 1928 total weekly loadings increased 6.4 per cent; in 1929, 5 per cent; in 1930, 7 per cent; in 1931, 3.4 per cent, and in 1932, 12.8 per cent.

As the table shows, there was an increase in the week ended September 3 over the week ended August 6 in the loading of each of the major classes of commodities, ranging from less than one per cent for ore

Freight Car Loadings in Weeks Ended—

	August 6	September 3	Per cent Increase
Grain and Grain Products	37,169	40,457	8.8
Live Stock	14,934	18,480	23.7
Coal	78,404	105,047	34.0
Coke	2,551	3,428	34.4
Forest Products	14,268	16,459	15.4
Ore	5,953	5,988	0.6
Merchandise—L.C.L.	166,971	174,493	4.5
Miscellaneous	175,783	195,375	11.1
Total	496,033	559,727	12.8

to as much as 34 per cent for coal. The increase of almost 13 per cent within these four weeks is significant principally because it exceeded even the seasonal increase in the corresponding weeks of 1928. In 1929, 1930 and 1931 the general trend of traffic was downward in the latter part of the year, but in 1928 it was upward, and continued to be so throughout the first three-fourths of 1929; and yet the increase in the four weeks ending with September 3, 1932, was relatively twice as great as in the corresponding part of 1928. Almost invariably a downward trend in the fall has been the forerunner of poor freight business, while an upward trend in the fall has presaged an upward trend throughout most of the next year.

Additional evidence that the trend of freight business has turned upward is afforded by other comparisons. Railway freight business became relatively the smallest in June 1932, that it has been during the depression. Car loadings were then 54.2 per cent less than in 1929; 47.1 per cent less than in 1930, and 34.3 per cent less than in 1931. In July they were 54 per cent less than in 1929; 45.9 per cent less than in 1930, and 34.3 per cent less than in 1931. In August they were still 54 per cent less than in 1929, but only 44.9

per cent less than in 1930 and 31.3 per cent less than in 1931. In the week ending September 3 they were only 26.3 per cent less than in the corresponding week of 1931, and there was no holiday in either of these weeks. They were only 45 per cent less than in the corresponding week of 1929, and 34.7 per cent less than in 1930, but there were holidays in the weeks compared with in both these years. However, the cumulative effect of all the comparisons is to indicate a decided tendency of freight business to increase. There have been upturns during the depression that proved temporary, but there has been no other upturn so marked as that which has occurred recently.

Henry I. Harriman on The St. Lawrence Project

The lessons of adversity are, for some people, hard to learn. One would think that business men, and particularly business leaders, would by this time realize that we cannot tax ourselves back into prosperity, and that we cannot re-create confidence by subsidizing new industries, thereby jeopardizing more efficient established enterprises in which the public has invested its savings and which yield handsome revenues in taxes.

This is the obvious lesson from this depression which, we should think, every college sophomore in economics has been able to draw. Nevertheless, it has not been learned by so important a business leader as the president of the Chamber of Commerce of the United States, Henry I. Harriman of Boston, who in a press release issued by the New York Republican State Committee has declared himself in favor of the St. Lawrence seaway project, citing the old familiar arguments of "lower transportation *costs* (italics ours) on food supplies, hence a lower cost of living; lower freight rates on many of the raw materials required by New England industries; and lower freight rates to many markets for New England finished products."

What Mr. Harriman neglected to state was that the St. Lawrence project will in the opinion of careful students cost more in taxes than it will save in freight rates and hence will raise, not lower, total transportation costs and the cost of living. It will divert traffic from a form of transportation which yields taxes to one which consumes taxes, and hence will increase the burden on other taxpaying industry. The effect of the canal on the service which the New England railroads would be able to render New England industry does not, apparently, concern him, any more than does the effect on savings of thrifty New Englanders which are, directly or indirectly, invested in rail securities.

It is a sobering fact to realize with things as desperate as they are today that the president of such a body as the Chamber of Commerce of the United States and as prominent a man of affairs as Mr. Harriman is should still believe in and seriously expound the very brand of pseudo-economics which is largely responsible for our present difficulties. We may well question how much the Chamber of Commerce of the United States will contribute toward a solution of the country's transportation problem when its president backs with the prestige of his position, and with an entirely fallacious economic argument, the St. Lawrence project which would increase taxes more than it would reduce freight rates and by diverting traffic would make the railway problem more difficult.

Co-ordinating Facilities

It has been recognized for several years that the successful transportation system of the future will be the transportation system which utilizes and co-ordinates the various means of transportation, whatever the type of roadbed each may require. One urgent requirement of the present and of the future, therefore, is the development of means whereby the transfer of passengers and freight shipments from one type of carrier to another may be accomplished simply, efficiently and economically. The paramount advantage of co-ordinated transportation, as we see it, is that, by means of short-cuts, it eliminates the waste of time which is inevitable when only one form of transportation with its peculiar limitations is employed. But unless the transfer from one form of transportation to another can be accomplished easily, and unless expensive and time-consuming transfer operations can be avoided, much of the advantage of co-ordinated transport will be lost. It is because of this that the development of facilities which will render such transfers simple and inexpensive is so urgently desired.

A good many engineering brains, concentrating upon this problem for a number of years, have evolved and offered such devices as the freight container, the demountable motor truck body, the highway trailer equipped with anchoring devices which enable it to be moved in trains on flat cars, and more recently, motor vehicles capable of being operated on both railways and highways. Some types of containers are equipped with wheels which enable them to be rolled from truck to freight car. Others can be handled by means of platform tractors, and still others require the use of crane facilities. Each such device, however, has characteristics which offer promise of useful service.

Perhaps the facilities by means of which the co-ordinated transportation of freight and passengers of the future will be provided have not yet been thought of. Certainly refinements in the devices now available are inevitable. The problem of devising the most efficient facilities for co-ordinated transportation still remains to be solved. Its solution will come the sooner if there is full and open-minded co-operation between the transportation and engineering brains of the country, supplemented by experimentation and test in service of devices as they are developed and produced.

Air-Conditioning of Passenger Cars Established in Two Years

The First Air-Conditioned Car—Baltimore & Ohio Coach on Which the First Tests Were Conducted During the Summer of 1929

Railroads now have choice of units built by eight manufacturers—Ice, mechanical-compression and ejector-evaporator systems are being installed on passenger cars—Units designed for all-year air-conditioning service

THE never-ending search by man for increased comfort and greater luxury has been the prime factor in developing present-day civilization. Always the discomfort of being too hot or too cold, having too much or not enough "fresh air" has been with us, until in comparatively recent years the engineers began serious work on the problem of controlling inside atmospheric conditions. Unfavorable atmospheric conditions in factory buildings were found to be a serious handicap in securing production. The off season for theatres and department stores was during the hot summer months when patrons and shoppers stayed away, because such places were uncomfortable. Thus the impetus to the development of air-conditioning equipment was received when a serious effort was first made to fill in the seasonal valleys in the business-cycle chart.

The idea of improving the surrounding atmospheric conditions in which we live and work is not new. About 1900 a system for washing the air was installed in the British Parliament buildings, London. This system consisted primarily of blowing the air through a series of water sprays as it entered the buildings. It was soon discovered from this and other similar installations that the temperature of the water had considerable to do with the temperature of the rooms.

It was from the experience with air-washing systems that the relation of temperature and humidity to human comfort and the need to control these two factors were developed. This development did not progress to any considerable extent until after the World War when systems were developed and placed on the market for washing and cooling the air by using cold water. The pioneers in this development were Willis H. Carrier, chairman, Carrier Engineering Corporation, and at that time chief engineer of the Buffalo Forge Company; the Warren, Webster & Company, Camden, N. J.; B. F. Sturtevant Company, Boston, Mass., and the York Ice Machinery Corporation, York, Pa.

The first air-washing and cooling equipments were large and occupied considerable space. Installations

were first made in factories, the products of which required cool inside temperatures for satisfactory manufacturing. Engineering research constantly improved the systems for washing and cooling air by developing apparatus which would control both temperature and humidity. Water for cooling was replaced by refrigerating units which considerably reduced the amount of space required for the equipment. Thus the "science" of air-conditioning was born.

The success of factory installations for air-conditioning led to its application in theatres, where it developed considerable prestige as an important factor in securing increased patronage during the hot summer months when heretofore theatre attendance dropped to low figures. From theatre installations, the demand for air-conditioning spread to department stores and office buildings. Then as smaller units were developed and placed on the market for small stores, homes and individual offices, the idea of air-conditioning passenger cars began to take tangible form.

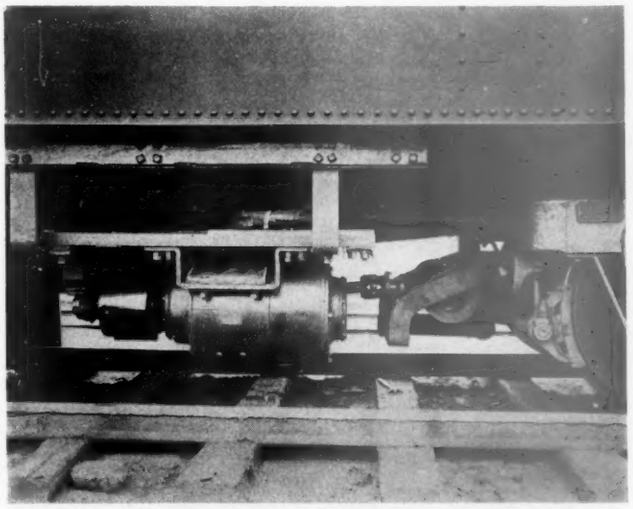
Baltimore & Ohio Pioneers in Air-Conditioning Passenger Equipment

Credit for pioneering in conditioning the air in railroad passenger cars belongs to the Baltimore & Ohio. In July, 1929, a B. & O. day coach was equipped for complete summer air-conditioning. This installation was made in co-operation with the Carrier Engineering Corporation which assisted in the engineering tests and development work. The tests with this coach were successful and the railroad decided to equip one of its Colonial dining cars, the "Martha Washington", for air-conditioning. On April 14, 1930, a test run was made with this car from Baltimore, Md., to Cumberland.[1] Following these and subsequent tests, the car was placed in regular service. At the present time the road has over 100 passenger cars in service which are equipped for air-conditioning by the York Ice Machinery Corporation.

The Atchison, Topeka & Santa Fe was the next railroad to equip a passenger car for air-conditioning.[2] This car was also a dining car, equipped by Carrier, in which installation a number of improvements were incorporated. It was placed in transcontinental service and has operated successfully across desert country since the summer of 1930. It was established on the initial test runs, that with the car loaded with passengers and with the kitchen stoves in operation, it was possible to maintain a temperature of 72 deg. F. or less in the dining room with an outside temperature of 104 deg. The wide range of temperatures in the territory through which the Santa Fe operates places severe demands on the air-conditioning equipment. It is reported that this road now has 12 dining cars in service equipped for air-conditioning, ten of which have systems furnished by Safety Car Heating & Lighting Company.

Progress Made Since 1930

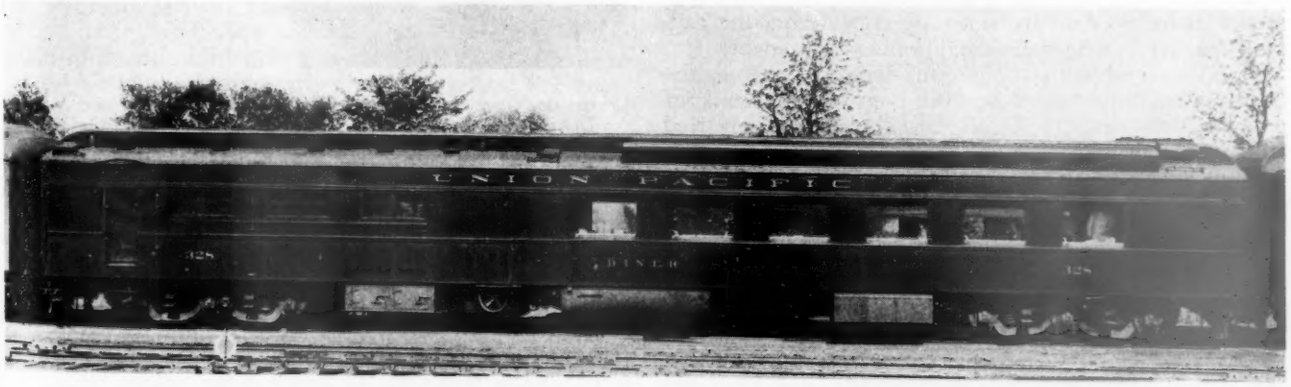
The pioneer work during the summer of 1930 by the Baltimore & Ohio and the Santa Fe led to further development work on the part of other railroads and of manufacturers of air-conditioning equipment. The year 1931 marked the purchase and trial of equipment by the Pennsylvania, the Missouri-Kansas-Texas, Boston & Maine, and the Chicago & North Western. The York Ice Machinery Corporation completed the initial development of its air-conditioning equipment for passenger cars and equipped the "Columbian" trains of the Baltimore & Ohio.[3] The Carrier Engineering Corporation, in conjunction with the Safety Car Heating & Lighting Company, New Haven, Conn., and the Vapor Car Heating Company, Inc., Chicago,[4] developed a system of air-conditioning using water as a refrigerant. Steam from the train line supplies most of the power required to operate the system.



Axle Generator Which Supplies Power for York Ice Machinery Corporation's Air-Conditioning System, with Compressor Refrigeration

The Melcher Company, which has been absorbed by the Modine Manufacturing Company, Racine, Wis., developed a "unit system" of air-conditioning. This system was first tried out by the Chicago & North Western

[1] *Railway Age*, August 9, 1930, page 267.
[2] *Railway Age*, August 23, 1930, page 362.
[3] *Railway Age*, October 31, 1931, page 675.
[4] *Railway Age*, September 12, 1931, page 398.



Union Pacific Diner Equipped for Air-Conditioning by the Pullman Car & Manufacturing Corporation

during the summer of 1930, and the tests were continued during the following year.[5]

A system which uses ice for cooling was developed during 1931 by the R. B. Engineering Corporation, New York, and the Boston & Maine,[6] the equipment being furnished by the B. F. Sturtevant Company, Boston, Mass. This development was sponsored by the Metropolitan Ice Company, Boston.

The Pullman Car & Manufacturing Corporation has developed a mechanical system using Freon as the refrigerant, which is installed on the "George Washington" train[7] on the Chesapeake & Ohio, and York also has further improved its system for the use of Freon as a refrigerant and has developed an improved system

Axle Generator Used in the Air-Conditioning System of the Westinghouse Electric & Manufacturing Company—The Cover of the Gear Case Is Removed

of power supply. The American Car & Foundry Company has developed its "Thermo-Gravity" system[8] which uses ice for a cooling medium. The Westinghouse Electric & Manufacturing Company has equipped both sections of the Illinois Central "Daylight Special" with mechanical refrigerating air-conditioning units.[9] The latest contribution to the field of air-conditioning passenger cars is that of the Rails Company, New York, which equipped two dining cars of the New Haven's "Yankee Clipper" with its Airtrol system using ice.[10]

Eight Manufacturers Offer Choice of Eleven Equipments

At the present time eight manufacturers of air-conditioning equipment have developed units for railroad service. Three of these companies have developed both ice cooling and compressor refrigerating units for application to passenger cars, which give the railroads a choice of eleven different equipments. It is reported that a number of other manufacturers have developments under way or are seriously considering the railroad market for their air-conditioning equipment.

Hand-in-hand with the recent developments in air-conditioning equipment, several improved systems of passenger-car ventilation and precooling have been tried and found successful. One is the precooling units which a number of railroads are now using to precool cars, especially sleeping cars, prior to departure from terminals. Another is the Airgard window ventilator, a device manufactured by the American Air Filter Company, Louisville, Ky.[11] This device accomplishes one of the important functions of air-conditioning units in that it filters and cleans the air as it enters the car, replacing the present suction system with pressure ventilation.

The need for providing air in passenger cars which is free from dust, dirt and cinders has long been recognized by railroad men. It has been found from experience with the various types of air-conditioning units, and also with the Airgard ventilator, that the slight pressure which is built up inside the car prevents the infiltration of dust and smoke around windows and doors.

This increase in air pressure is due to the action of the fans or blowers which draw the air through the cooling or cleaning units and circulate it through the car. As an assistance in attracting business and developing patronage, this feature which air-conditioning provides is of more importance in railroad operation than perhaps in any other field to which air-conditioning has been adapted. Complaints because of dirt and cinders have always been with the railroads since the days of the "Tom Thumb" and stage-coach cars.

Power Supply

The equipment thus far developed for conditioning the air in passenger cars falls into three classifications, depending on the source of refrigeration; namely, systems employing ice, the ejector-evaporator system and the compressor systems. The first two systems are alike in that they both employ water as a refrigerant or medium for transferring and dissipating the heat from the air passing through the air-conditioning units. The compressor system, however, requires a special refrigerant of low vapor tension, which is condensed by compression and, in all recently developed systems, expands directly through the air-cooling coils.

The most significant differences of the three classes, however, are in the character and amount of the power

Underside View Showing the Electric Speed Control and V-belt Drive from the Stand-by Motor of the Air-Conditioning System Developed by the Pullman Car & Manufacturing Corporation

supply which they require on each car. All of the systems employ electric motors for driving blowers and in most cases for both blowers and pumps. It is not possible to compare one system with another operating under different circumstances, but a resumé of data concerning connected load and power or ice supply is offered in the following to indicate the values required.

The Boston & Maine ice-cooled car designed by the R. B. Engineering Corporation and equipped by the B.

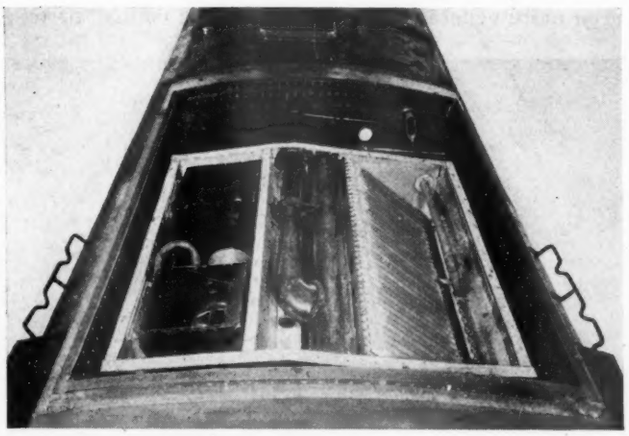
[5] *Railway Age*, September 26, 1931, page 469.
[6] *Railway Age*, October 17, 1931, page 588.
[7] *Railway Age*, April 30, 1932, page 718.
[8] *Railway Age*, May 14, 1932, page 825.
[9] *Railway Age*, July 30, 1932, page 140.
[10] *Railway Age*, September 10, 1932, page 367.
[11] *Railway Age*, April 23, 1932, page 691.

F. Sturtevant Company, employs one ¾-hp. pump motor and two ½-hp. blower motors. Experience has shown, however, that these motors are of greater size than is necessary. The power supply system, which is also used for lighting, consists of a 5-kw. generator and a 450-amp. hr. storage battery. On a test run, during which the average outside wet-bulb temperature was 70 deg. F. and the average dry-bulb temperature was 81, the ice consumption was 290 lb. an hour. On another run when the temperatures were 75 and 86 respectively, the ice consumption was 418 lb. an hour.

On the two New Haven diners equipped with the Airtrol system the dining room with a content of 4,500 cu. ft. is cooled by a system employing one ¼-hp. pump motor and one ¼-hp. blower motor. For cars on which a larger space is air conditioned, two pump and two blower motors would be used. The two diners now in service have ice tanks with 1,500 lb. capacity which is sufficient for the run from New York to Boston, Mass.

The Thermo-Gravity ice system of the American Car & Foundry Company installed on Rock Island diners employs a ¼-hp. pump motor, a 1/6-hp. pump motor and a ⅓-hp. blower motor. These cars run long distances through territories where the temperature at times reaches 105 deg. and arrangements are made for icing the cars en route.

The Safety-Carrier-Vapor system, using water as a refrigerant, obtains power for cooling the water from the train steam line. The steam operates an ejector



Safety-Carrier-Vapor Unit Installed in a Car—The Roof Cover Is Removed to Show the Cooling and Heating Coils and Air-Intake Duct

which creates a vacuum in which the desired cooling of the water is effected by evaporation. When the system is operating at its capacity of five tons, it requires 170 lb. of steam per car per hour at the nozzle, or 205 lb. at the locomotive, allowing for 35 lb. loss per car in the train line. In addition to this there is an electrical load of 2.4 kw. for driving pump and fan motors. For heating in the winter, the maximum steam requirement is about 260 lb. of steam per car per hour.

When refrigeration for air-conditioning is produced by a compressor which takes power from the car axle, it is difficult, if not impossible, to measure the additional amount of power taken from the locomotive. It is estimated that from 400 to 600 lb. of steam per car per hour at the locomotive is required to produce five tons refrigerating effect and to operate the necessary auxiliary equipment on each car. Several means of obtaining this power are in use. The limit of driving capacity of a single flat belt is about 5 kw. and other methods of drive therefore become necessary.

The first car placed in service on the Baltimore & Ohio was equipped with one 10-kw. and one 5-kw. generators, each of which was gear-driven from a car axle by a Diehl drive. Cold water was used for storage or refrigerating capacity.

The next system installed on the Santa Fe employs two safety 7½-kw. generators with Foote direct drives from the inside car axles. Three 750-amp. hr. Exide Ironclad batteries, with a total capacity of 2,250 amp.

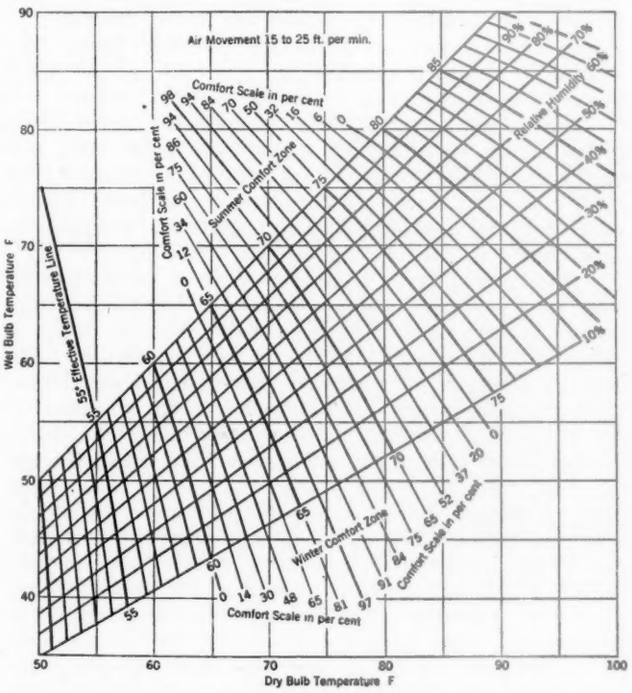
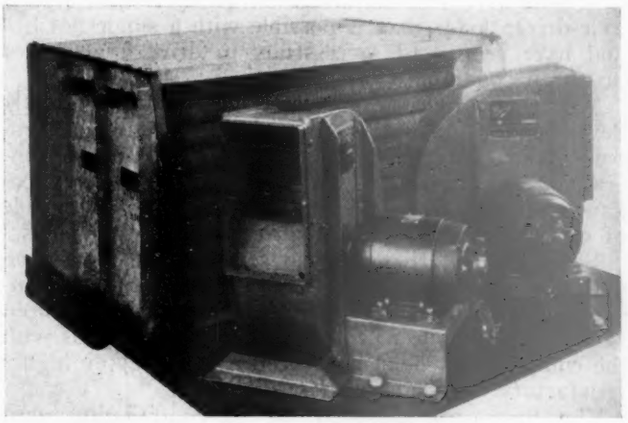

Air Movement 15 to 25 ft. per min.
Comfort Scale in per cent
Summer Comfort Zone
Winter Comfort Zone
Relative Humidity
55° Effective Temperature Line
Wet Bulb Temperature F
Dry Bulb Temperature F

Chart Showing the Seasonal Variation in the Comfort Zone—Reproduced from the Engineers' Guide of the American Society of Heating and Ventilating Engineers

hr. are connected in parallel across the line to provide reserve power for the cooling and lighting load at stations and at speeds below 15 miles an hour. A 7½-hp. motor drives the compressor, and smaller motors, also receiving their power from the battery and generators, are used to drive pumps and blowers.

When the Baltimore & Ohio equipped a number of cars in 1931, a gasoline engine was used on each car to drive the compressor and a pump. The use of the engines was discontinued at the end of the first season and power is now again taken from the car axle. Two flat belts connect one axle with bevel gears in a gear box suspended from the truck frame. A splined shaft,



Westinghouse Air-Conditioning Unit and Direct Motor-Driven Fans which Are Installed Under the Car Roof

parallel with the car axis connects the driven gear with a multiple V pulley. The 7½-kw. Fairbanks-Morse, third-brush generator is driven from this pulley by Dayton multiple V belts. The 7½-kw. generator is assisted by the regular 4-kw. car-lighting generator with the usual single flat-belt drive. Power while standing or running at low speeds is supplied by a 1,000-amp. hr. Exide Ironclad battery developed especially for air-conditioning. As with the Santa Fe installation the compressor and auxiliary apparatus are motor-driven.

An electric system which requires small power consumption has been installed on the Chicago & North Western by the Modine Manufacturing Company. It is called a unit system, and as applied employs four motor-driven refrigerating units, two under each side of the car. The combined capacity of all motors used is 2½ hp. and power is furnished by a 5-kw. 32-volt generator and two 450-amp. hr. batteries installed independently of the lighting system.

A mechanical drive with an electric speed control instead of a generator and motor for driving the air compressor is used on the Chesapeake & Ohio cars equipped by the Pullman Car & Manufacturing Corporation. The device consists of an armature, gear-driven from the car axle, and a rotating field connected to the compressor. By varying the strength of the magnetizing current in the field, slip can be caused between the armature and the field and the speed of the compressor held practically constant, while the speed of the car and the armature varies. The car is also equipped with standard car-lighting battery and generator which supply power for the auxiliary apparatus as well as the lights. When the car is standing in the terminal the compressor can be operated from a three-phase, 220- or 440-volt outlet. The motor for this purpose runs idle from the compressor shaft when the car is on the road; multiple V belts connect the motor and compressor shafts. This is done to avoid the use of the heavy cables which are required for a 32-volt system.

The principal feature of the Westinghouse all-electric drive, applied to ten cars on the Illinois Central, is a 15-kw. high-speed generator, connected to the car axle by a nose-suspended drive similar to that used for street-car and multiple-unit traction motors. The generator has its own exciter and in conjunction with a 1,000-amp. hr. battery, supplies all of the car's requirements for air-conditioning and light. An a.c.-d.c motor is used to drive the compressor. This motor operates from the battery and generator when the car is running or standing for short periods, and when the car is standing in the terminal the motor can be operated from an a.c. power supply during which time the d.c. winding can be used to charge the battery.

V belts have demonstrated their ability to haul greater axle-driven loads than is possible with a single flat belt and have been used successfully to drive a generator on an air-conditioned car.

A friction drive for air-conditioned cars was recently developed by the Dallas Machine & Locomotive Company, which can be used for driving one or two generators. It is now driving a 3-kw. machine on the Spokane, Portland & Seattle and is claimed to be capable of carrying loads ample for air-conditioning purposes.

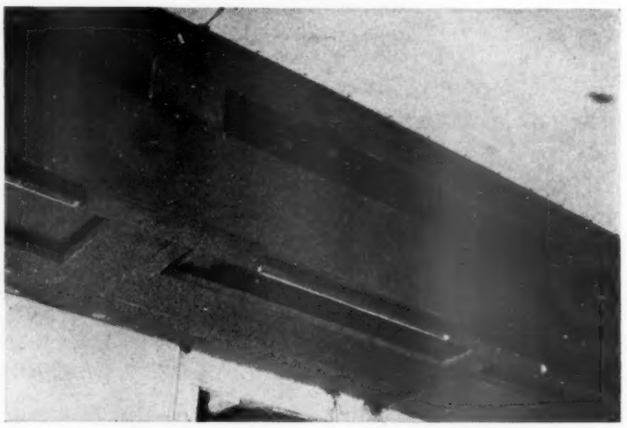
Some of the drives now in service have introduced new maintenance problems and in some cases a considerable amount of yard charging of batteries has been necessary. In spite of this condition, the railroads with the equipment at hand have been able to supply highly satisfactory air-conditioned service.

The first cars equipped for air-conditioning used mechanical refrigeration. The refrigerant used was ammonia. Although this liquid has been used for years and is still used as the refrigerant in ice-making and other refrigerating processes, nevertheless its use in passenger cars was highly undesirable for obvious reasons. There were other refrigerants on the market or in the process of development which did not possess the objectionable features of ammonia, but still did not meet railroad requirements with respect to safety.

Undoubtedly the rapid progress in the air-conditioning of theatres and other buildings where people congregate hastened the development of a refrigerant which would comply with local regulations and safety codes. Freon, a refrigerant produced by the Kinectic Chemical Corporation, Wilmington, Del., has already become an important factor in adapting compressor refrigeration to railway requirements.

This refrigerant boils at -21.7 deg. F. and is odorless, non-irritating, non-toxic, non-flammable, and non-explosive. It is not corrosive and makes a stable refrigerant. It can be used in a small compressor and operates at low, but positive pressures. No hazard is involved in case of leaks in the system. For this reason it can be expanded directly through the air-cooling coils, thus eliminating the intermediate brine circuit with its cooling tank and pump. The latest compressor systems are thus much lighter than those in earlier installations and their power load has been somewhat reduced.

Air-conditioning, defined in its broadest sense, is the practice of simultaneously controlling two or more of the physical or chemical properties of air.[12] However, in the development of air-conditioning the terms have been more generally associated with the control of tem-



Air Duct Laid Along the Carline of the Lower Deck of a Car Being Equipped with a Thermo-Gravity System

peratures and humidity which are the two most important physical properties of air bearing on the comfort and health of man. In problems involving human comfort it is necessary to maintain certain limiting or desirable effective temperatures which depend on the experimentally determined relationship of wet- and dry-bulb temperatures and air motion.

From the standpoint of comfort and health, air-conditioning may be regarded as the art of maintaining the atmosphere of occupied spaces at a condition best suited to the physiological requirements of the human body. These requirements consist of maintaining simultaneously the proper temperature, humidity and air movement and a reasonable air purity with regard to dust, bacteria and odors.

The American Society of Heating and Ventilating Engineers has sponsored considerable research relative

[12] The Engineers Guide, 1932, published by the American Society of Heating and Ventilating Engineers, contains three chapters on the subject of air-conditioning. Much of the information contained in the following paragraphs is taken from this book.

to comfort and health especially from the standpoint of air-conditioning. The psychrometric chart shown is plotted from observations made in the research laboratory of the society.

The winter comfort zone as determined by the A. S. H. V. E. laboratory ranges from 63 deg. to 71 deg. F. The summer comfort zone ranges from 67 deg. to 75 deg. F. These effective temperatures average about 4 deg. higher than those found in winter when heavier clothing is worn. Young men, as a general rule, prefer conditions in the cool region of the comfort zone shown on the chart, while women and older people prefer the warm region of the comfort zone.

At the present time there are approximately 250 passenger cars equipped for air-conditioning in service or being equipped in the United States. The Baltimore & Ohio has the largest number of cars thus equipped. The Chesapeake & Ohio; Chicago & Eastern Illinois; St. Louis-San Francisco; Illinois Central; Wabash; Chicago, Rock Island & Pacific; Pennsylvania; Missouri-Kansas-Texas; Chicago & North Western; Chicago, Milwaukee, St. Paul & Pacific; Santa Fe; Union Pacific; Alton, and Southern Pacific have all the cars of one or more trains, or the dining cars only, equipped. The New York Central is air-conditioning its "Twentieth Century Limited" and a number of other trains.

Air-conditioning introduces a complete new era in passenger-car ventilation and heating which promises to effect almost as much improvement in the comfort and desirability of railroad travel at all seasons as does the air-cooling function during the summer months. Considering the fact that for many years ventilation of railway equipment has depended upon the suction ejector principle, which produced a slight vacuum within the car and depended for effectiveness on the infiltration of highly dust-laden air around windows and doors, dirt in disagreeable quantities has always been the price of air changes in the interior. The air-conditioning systems which so far have been installed have reversed this action and control the ventilation at the intake. This permits filtering and, by slightly raising the pressure of the interior, allows the air to filter outward around the windows and doors and through any other openings which may be available.

But unless the air-conditioning units are arranged to operate during the heating season, the pressure-ventilation function will cease with the end of the cooling season and the dirty conditions of suction ventilation will prevail for most of the year. Most of the systems now on the market provide wholly or in part for heating the cars during cold weather by radiation in the air-conditioning units. Some of these units are already provided with humidifiers for use during the heating season to overcome the characteristic aridity of interior atmospheres during cold weather. These additional functions, which provide for complete, year-round air-conditioning service, do not add greatly to the weight or space required and, under the present state of the art, can be provided with complete automatic control if desired.

Within two years after the pioneer installation of equipment to effect summer cooling of the atmosphere within passenger cars, air-conditioning has been so completely adapted to passenger-car requirements that complete control of their interior atmospheres has become entirely practicable. Considering the rate at which active interest has spread among the railroads during this period of development in technique, a prediction may be ventured that long-distance railroad travel will soon stand out in the mind of a fastidious public as one of the most comfortable experiences offered by our modern civilization.

Security Owners Report on Highway Competition

THAT the subsidies created by the federal and state governments incident to the development of the national and local highway systems and the attendant growth of motor vehicle operation, considered in conjunction with the facilities of the steam railroads, have provided the country with a transportation system more than adequate for years to come was the belief expressed on September 13 by Milton W. Harrison, president of the Security Owners Association, who has completed a comprehensive report upon "the highway situation as related to motor truck competition with rail carriers."

The report stressed the destructive competition with which the railroads have had to cope by reason of the freedom of motor operation from the restrictions of federal regulation of rates. Alluding to the financial effect of motor vehicle expansion upon railroad earnings, Mr. Harrison's report contended that if during the period of depression the revenue earned by trucks and buses had been allotted to the railroads, about sixty cents in net revenue would have been realized by the railroads out of each dollar earned by the motors.

The highways report is one of several basic studies upon which the Security Owners Association has been engaged for more than a year in an effort to focus attention upon the railroad problem with especial reference to the depression and in order to develop a program of legislative recommendations contributing toward the restoration of railroad credit and the rehabilitation of the railroad industry. Other studies consider the competition of waterways, of commercial aviation, of pipe lines, and the elimination of grade crossings jointly by states and railroads, as well as the effect of Reconstruction Finance Corporation loans upon capital structures.

The Association is preparing through its executive committee to urge federal and state authorities to bring about effectual co-ordination of the steam and motor transportation services.

By reason of the financial responsibility of the railroads and because of their experience, the Security Owners Association will urge that the co-ordinated services be brought under the control of rail management. "Many states," says the report, "have few or no requirements as to financial responsibility of truck operators; hence in many cases damage or loss is not compensated for.

"It will be necessary to bring about changes in public policy to effect the greatest measure of rail-highway co-ordination.

"The economic justification of the national policy towards highway expansion has been open to serious question," Mr. Harrison stated. "The government is spending an ever-increasing portion of its income for highway purposes, but despite this the highways are not, and undoubtedly never will be, entirely self-supporting."

Mr. Harrison called attention to the fact that a monopoly in the transportation industry no longer is enjoyed by the railroads. "The development of hard-surfaced roads, inland waterways, pipe lines and aviation have drawn to themselves traffic formerly carried by the railroads. The regulatory restrictions to which the railroads are subjected have hindered their efforts to meet this competition.

"This growth has come in response to public demand," he said, "and such agencies, of course, do fulfill a defi-

(Continued on page 404)

The "Martha Washington," Air-Conditioned Diner of the B. & O.

Passengers Unanimous in Approving Air-Conditioned Service

Appeal of restful quietness and cool, even-temperatured cleanliness on such trains has become a most potent sales argument of traffic representatives

PASSENGERS are unanimous in their approval of air-conditioned cars, being ever ready to applaud railroad efforts along that line, even though the results of the development from a traffic standpoint cannot as yet be measured statistically. This is the consensus among traffic officers addressed by the *Railway Age* in a recent survey designed to determine the public reaction to air-conditioned service.

The survey embraced virtually all roads which have installed air-conditioned equipment and from their replies came the composite revelation that there is evidently a universal demand for the new comforts of travel on trains affording the cool, even-temperatured cleanliness and restful quiet which air-conditioning brings. It is one of the best talking points that passenger traffic representatives have and the public's desire to patronize an air-conditioned train bids fair soon to become a compelling factor in the prospective train traveler's selection of a route.

Some traffic men suggest that the momentum supplied by the favorable public response will be such as to drive the development rapidly to the point where none but short-run and branch-line trains will be without air-conditioned equipment. Other replies, unlike the bulk of the answers which were necessarily in general terms, were able to cite specific traffic gains attendant upon the operation of air-conditioned trains.

One road, which operates completely air-conditioned trains in both directions on a long-distance run, reported that, after traffic increases for other causes were eliminated from the calculation, it was able, in the first month of the trains' operation, to credit air-conditioning with a traffic increase of from 18 to 20 per cent as compared with the last month of the trains' operation without air-conditioned cars. "The reaction of the public is fine," this road says "and we are receiving many complimentary letters. Even temperature is maintained with fresh air, no dirt or dust."

Public Thoroughly Sold on Air-Conditioning

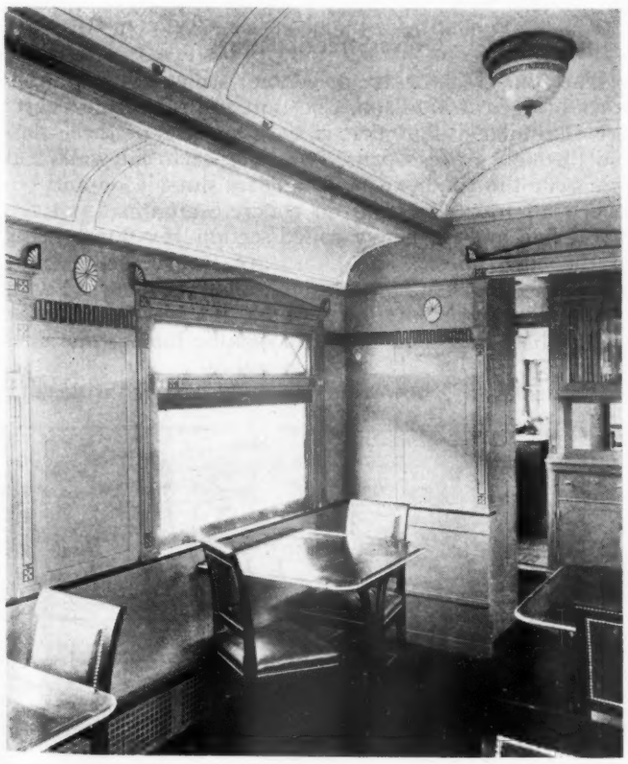
Another road operating completely air-conditioned trains has not as yet "had a full opportunity to find out everything we want to know" but is nevertheless able to report that "the public seems to be thoroughly sold on the idea and we believe it is only a question of a little time before any train running any considerable distance will have to be air-conditioned if it is going to do any business."

A traffic officer of a third road which has also air-conditioned complete trains thinks "there is no question but what all Pullman service and practically all through coach service will be air-conditioned within the very near future. While quite a little advancement has been made in the last year, I think there will be greater advancements that will simplify and in turn reduce the cost of this equipment. Many look upon air-conditioning as our newest and most important commercial development, and certainly there is no public service where it offers greater advantages than on rail cars where you have not only the temperature but also an important factor of dirt to deal with."

Specifically, in connection with air-conditioning service on his own road, this traffic officer says: "We have had a very interesting experience this summer and are

confident from a check of patronage that our air-conditioned trains have given an excellent account of themselves and that the service has very definitely influenced a considerable flow of travel. Unfortunately passenger traffic is at such a low ebb, and showing such general decreases as compared with the previous year, that our comparisons are thrown out of balance. It is, therefore, difficult to determine just what amount of business has been created by this new feature of comfort, but it is reasonable to assume, where passengers on our trains are profuse in their compliments and statements regarding the comfort and pleasure of the innovation and hundreds of them go to the trouble of writing us in connection with it, claiming that it is one of the greatest features of comfort ever developed, that they will never ride in any other way, etc., etc., that it must be of advantage to the rail transportation industry. Its influence may not be strong enough to cause a passenger to make a trip, but it will at least prevent their refraining from travel on account of the usual travel discomforts.

"As for myself I think, without question, that for summer travel or travel where the heat is a factor, that it is the outstanding development for passenger comfort in my time, and while the advantages are not as noticeable during the winter season, yet they are almost as real, because we will have thermostatically controlled heating which insures an even temperature and avoids the stuffy, over-heating condition that frequently occurs on all railroads during the winter season. The air in the car will be continually circulated by forced draft fans—the air will be screened, which will remove practically all of the impurities; in addition, about 25 per cent of the circulated air will be outside new vitalized air, avoiding one of the great curses of winter travel, namely the stuffy, foul car. These features are to have their first experiment this coming winter, because we have not had real winter air-conditioning previously and I think this better air, uniform temperature, marked cleanliness and the almost absence of noise will be features that the traveling public will appreciate."



One of the Santa Fe's Air-Conditioned Diners

Coach in Service on the C. & O.'s Completely Air-Conditioned Train—the "George Washington"

Replies from two other operators of completely air-conditioned trains reflect the same favorable public response as will be seen from the following quotations:

1. "Since our trains have been air-conditioned we have had many compliments from our patrons, as to the comfortable temperature in the cars and the lack of dirt or dust. Up to the present time our traffic on these trains has improved to some extent, in spite of the general depressed business conditions."

2. "We have had many compliments on the part of the traveling public, the burden of such remarks being that it is a step in the right direction to retain and to recapture passenger traffic, but we have no authentic statistics indicating any definite increase in business since the times are such, and the fluctuations in travel are now so wide, that it is difficult to reach any conclusion as to just what the improvement has amounted to in dollars and cents."

Air-Conditioned Diners Have Wide Appeal

Public response similar to that reflected in the foregoing has also been noted by those roads which have as yet installed air-conditioning apparatus only on dining cars. One of these recently queried its off-line passenger traffic representatives to determine the public reaction to the innovation. The comments of these representatives are both interesting and illuminating. Some are quoted below:

1. Has resulted in additional business for our line. After public announcement of the service several patrons asked to have their space on trains carrying this equipment.

2. Numerous favorable comments; secured 5½ round-trip tickets as a result of this improvement. The ——— office favored us with 2½ round-trip tickets entirely on strength of new feature.

3. Passengers' comment favorable and desire to use trains so equipped. Initial lines tell us this feature in a few instances has been the means of securing traffic for our line. It is one of the best sales talking points we have.

4. Have received numerous inquiries from ticket sellers relative to operation of these air-conditioned cars and find

(Continued on page 405)

The Broadway Subway—An Excellent Example of the Esthetic Use of Structural Steel

An Unusual Grade Separation Structure

Elevation of Kentucky & Indiana Terminal tracks in Louisville embodied an interesting bridge over Broadway

AN illustration of the manner in which structural steel may be utilized to meet the demands of aesthetics is afforded in the three-span bridge that was built to carry the tracks of the Kentucky & Indiana Terminal over Broadway in Louisville, Ky., as an important feature of the track-elevation project recently completed by that railway. The structure is also noteworthy as an example of the use of continuous construction to obtain the least, economical depth of girders for a 60-ft. span between curb lines. The project embraced still other elements that are worthy of record, chief among which were the manner in which traffic was handled during construction and the means employed to provide continuous service to several industries without interruption.

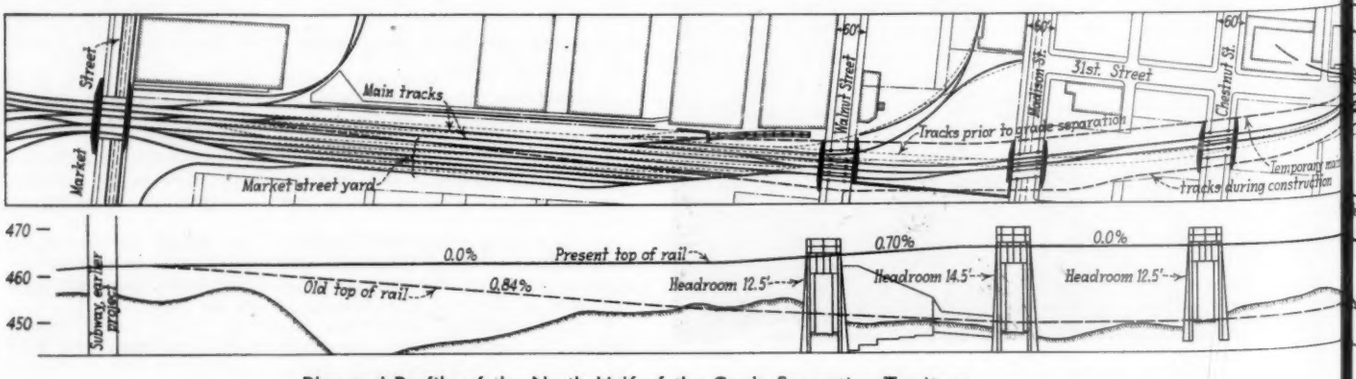
The Kentucky & Indiana Terminal, which provides an industrial service for 286 industries in Louisville, Ky., and New Albany, Ind., an interchange service between all railways entering the two cities and a terminal service for each of its owning lines, is owned jointly by the Baltimore & Ohio, the Chicago, Indianapolis & Louisville and the Southern.

The grade-separation project involved the elevation of its line from an existing subway at Market street to and across Broadway, a distance of 3,900 ft., with a run-off extending to Kentucky street, an additional distance of 2,000 ft. The embankment was constructed for a two-track main line, but four of the bridges over streets were built for three tracks and the fifth one for four tracks. In addition, the work involved the raising of a six-track yard north of Walnut street and the reconstruction of all industrial connections. The grade separation involved a maximum raise in grade of the tracks of 16.3 ft. and a depression of the streets ranging up to 3.8 ft.

Five Street Subways

The four-track bridge at Walnut street and the three-track bridges at Madison, Chestnut and Magazine streets are of similar design, that is, each consists of three simple through girder spans, one over each sidewalk and one over the roadway, with girders outside of and between all tracks, resting on concrete abutments at the street line and on heavy rolled-section H-column bents at the curb lines. The floors are transverse I-beams about two feet center to center, filled and covered with concrete, waterproofed with built up, cloth-membrane and asphalt, and covered with asphaltic lumber one inch thick.

At Broadway, however, which is 120 ft. wide and



Plan and Profile of the North Half of the Grade Separation Territory

where a 60-ft. span was required across the roadway, a type of design was adopted which not only resulted in a more pleasing structure for this important street, but also permitted of much shallower girders than would have been possible with a simple-span structure. It consists of a stiff frame of plate-girder construction in which the three spans and the columns at both the street and curb lines function as a unit. There are no abutments, and in their stead thin reinforced concrete retaining walls were built against the backs of the street-line columns so that the lateral earth pressure, as well as the dead and live loading of the bridge, had to be taken into account in the design.

By taking full advantage of the reduction in the bending moments secured in the continuous design and by resort to heavy girder flanges it was possible to meet stress requirements with a depth of girders at the center of the street of only 4 ft. ½ in., back to back of angles, and obtain a floor depth of only 3 ft. 7 in. from the top of rail to "low steel." The floor is of encased I-beams as in the other bridges.

An Attractive Design

To provide adequately for the negative moments in the column and girder intersections it was necessary to give the columns a much greater width at their tops than is ordinarily required, but by introducing heavy curved fillets and a pronounced taper on the columns and by increasing the depth of the main-span girders over the curb columns, the structure was given a very pleasing outline that made it entirely unnecessary to resort to encasement or ornamentation for the sake of appearance.

A design of this character necessarily introduced special problems in fabrication and erection. The shipping units consisted of (1) the columns below the bottoms of the curved fillets, (2) the intersection units embodying the portions of the girders over the tops of each column, and (3) the remaining portions of the girders. Erection entailed complete field web and flange splices. It is of interest also that the transverse stiffness of the column bents was also developed by stiff-frame construction rather than by the use of the conventional cross-bracing. While this design effectively met the conditions imposed, it entailed the use of more steel than would have been required for a simple-span structure with deeper girders, and also gave rise to a greater cost per pound of steel, but the added cost was more than offset by the decreased cost of abutments.

Construction Procedure

The plan adopted for construction was to build two temporary main tracks for the handling of traffic and the maintenance of industrial connections throughout the entire length of the work except for the 2,000 ft. between Broadway and Kentucky street, where single track was of necessity operated during most of the construction period. The temporary tracks were built as far to the east and west of the permanent track locations as possible in order to provide clear space for the construction of the fills and bridges between them and to provide continuous connection with industrial tracks during the work. This plan was entirely successful. There were no serious delays to traffic, and, except for the cost of additional telegraph operators at each end of the 2,000 ft. of single track, there were no assignable increases in the cost of train movements. The work was

The Subway at Chestnut street

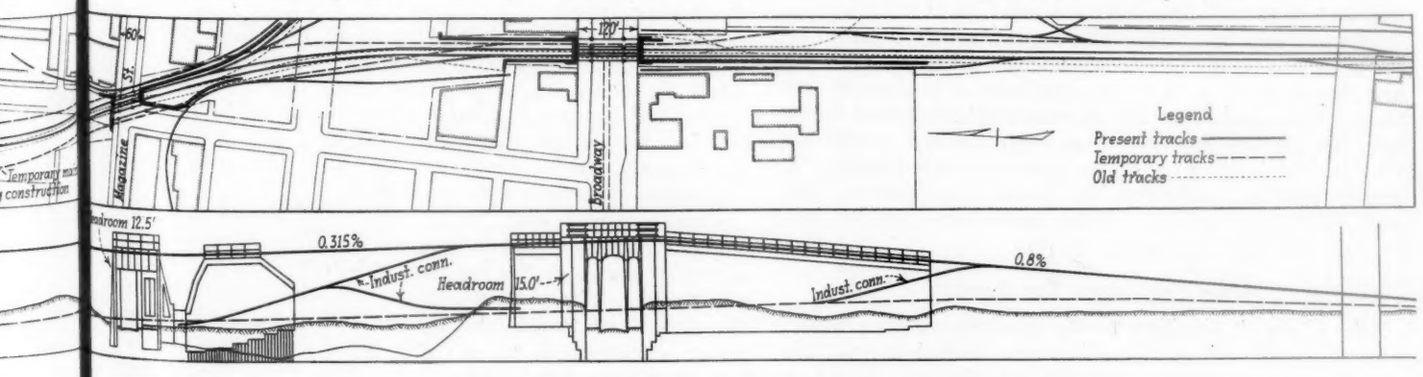
executed, also, with but little interference with street-car movements on Madison street and Broadway.

The embankment, 98,156 cu. yd., was made largely of the spoil from building excavation work in the city and was delivered and placed by motor trucks, the average haul being from 2 to 2½ miles over paved streets. A Caterpillar-tractor spreader was used to even up the fill and was employed also as a helper for trucks on steep grades or in soft spots.

All fills were finished as nearly as possible to final grade and width while the temporary tracks were in service at the low level, consequently short pole-crib walls of different lengths were built at the corners of all abutments, where the natural slope would foul the tracks. Crib walls were built also on both sides of the temporary southward track where it cut across the site of the fill north of Broadway. During the time that this gap in the fill was being hurriedly closed, train operations were conducted over single track on the temporary northward track from Kentucky street to Market street until one main track could be placed in operation on the fill. Then, after the fill was completed at all the narrow points, the second main track was placed in service on the fill. The industrial connections were maintained with the surface tracks until connections from the elevation could be placed in service.

Concrete Work

The concrete, amounting to 12,367 cu. yd., was mixed at a central plant near Broadway and hauled in trucks from which it was deposited directly into the work or



Plan and Profile of the South Half of the Grade Separation Territory

elevated by a portable conveyor operated by a gasoline engine. The concrete was all made in accordance with specifications embodying the water-cement ratio, 1,500-lb. concrete being specified for heavy footings and walls, and 2,000-lb. concrete for all other purposes. Celite was used in all concrete having exposed faces which, in the case of walls and abutments, were finished by hand rubbing and power grinders. Adequate provision was made for drainage behind retaining walls and abutments.

All expenditures incurred in carrying out the grade separation were divided between the railway and the city in accordance with the Kentucky statute, the railway paying 65 per cent and the city 35 per cent, except that the railway bore the entire expense of restoring its tracks and other facilities on the new grade, and that the local street railway participated in the cost of the separation work at Broadway and Madison street. The total cost of the work was $782,000.

The general contract for grading, bridges, etc., was let to the Henry Bickel Company of Louisville, Ky.; the railroad company removed and relaid all tracks and built an interlocker at Madison street with its own forces. All street work was handled by the city of Louisville and the Louisville (street) Railway Company took care of its own track and other changes.

The specifications and plans for the work were prepared by Fellheimer & Wagner of New York and the execution of the work was under the direct supervision of W. S. Campbell, manager and chief engineer of the Kentucky & Indiana Terminal, represented in the field by C. F. Burrell, engineer maintenance of way.

How Much Decay in Ties Before Treatment?

TO what extent, if any, decay is permissible in ties for treatment is a question involving considerations that have long been a source of confusion and misunderstanding among inspectors and others concerned with the interpretation of tie specifications. In order to clarify the situation, the Committee on Wood Preservation of the American Railway Engineering Association, through a subcommittee headed by C. Marshall Taylor, prepared a report on the subject which was presented at the last convention. The following is an abstract of the report.

Section 12 of the present tie specifications reads as follows: "The following decay will be allowed: In cedar and in cypress, 'pipe or stump rot' and 'speck,' respectively, up to the limitations as to holes; in chestnut, 'bark disease' up to ¼ in. deep. 'Blue stain' is not decay and is permissible in any wood."

These limitations cover those ties which usually are not treated. As the great majority of all ties used today are given some preservative treatment, it is obvious that in any deviation from the standard specifications which say that all ties shall be "free from decay," consideration should be given to those species which provide the largest percentages which are given preservative treatment, including oak, pine, gum, beech, birch, maple, elm, Douglas fir, hemlock and Jack pine.

Many Inspectors Too Lenient

The difficulties incident to the interpretation by inspectors of specifications regarding any deviation from the requirement of "decay-free" ties are obvious. Furthermore, practical experience with inspection, according to the present specifications as now interpreted by some tie inspectors, develops the fact that some of them are prone to be too lenient in their interpretation. Also some ties have hidden defects which cannot be detected under even the most rigid inspection.

The fact that wood preservatives are able to lengthen the life of ties from an average of 7 years to 20 or more, has created in the minds of some the thought that the preservative treatment may in some way bring strength and durability to the defective portion of the tie. It is well to disclaim any such ability on the part of the preservative, since its function can be relied upon to lengthen the life of sound wood only.

To suggest that the railroads accept ties with any defects is likely to upset the fine record which preservative treatment has attained. When untreated ties were the rule rather than the exception, the presence of small defects did not have much effect on ties with an average life of seven to eight years. However, since the advent of treated ties with normal life histories of from 20 to 40 years, depending on their mechanical ability to withstand track conditions, the presence of even a very small defect is likely to weaken a tie in due course of time, thereby limiting the possibility of the long life that should be expected.

Practice of Treating Plants

With regard to the policy to be followed at the wood preserving plant at the time ties are seasoned and fit for treatment, railroads have varying practices. In most cases, the ties are the property of the railroads and there is a tendency to consider them worthy of treatment, if showing slight defects, regardless of the attitude at the time of purchase. This practice is inconsistent and should be eliminated. Climate and weather conditions at plants are such that ties frequently become ready for treatment in greater numbers than the plants are capable of treating promptly, with the result that before all the ties are finally treated, some of them become "overripe"—a term used to designate those ties which have become over-seasoned. Under such conditions, many ties are treated which undoubtedly will not hold up mechanically. Furthermore, it is almost axiomatic to say that ties that show outward signs of decay are actually quite seriously deteriorated in strength, though they appear sound.

"Blue stain," as referred to in the standard specifications, is not decay and ties infected with this fungus organism only can be classified as sound ties. The point to be remembered is that "blue stain" is a result of the presence of a non-wood-destroying organism, and unless the ties are handled promptly and stored to allow proper seasoning, the conditions under which the "blue stain" is developed may lead to infection with wood-destroying fungi.

Molds are often another cause of rejection, particularly in connection with gum and beech ties. Here again the early stages of these molds need not be discriminated against, but their presence should be the basis for intelligent inspection, because ties harboring molds may also be infected at the same time with other organisms destructive to wood fiber.

Closely allied with "blue stain" and molds are the stains which may appear on wood adjoining a locality of active decay in the log from which the tie was manufactured. These stains, caused by fluids incident to the growth of fungi, which percolate outward from the point of active decay, are the advance indications of the conditions which cause wood fiber to be destroyed.

Wood so stained is not always decayed, but the presence of any such discoloration should attract the attention of the inspector who should examine the tie closely for the presence of actual decay.

A few years ago, the American Wood-Preservers' Association, in co-operation with the United States Forest Products Laboratory, issued a booklet entitled "The Decay of Ties in Storage" by Dr. C. J. Humphrey, pathologist. This booklet was prepared to help persons engaged in inspecting crossties to identify the various species of molds, stains, and wood-destroying fungi. It contains plates showing the different fungi in colors as they appear in nature and should be in the hands of every person identified in any way with the inspection of crossties. It defines very clearly those fungi which are to be discriminated against, as well as those which are classified as being unharmful.

Burn Defective Ties

It is frequently a difficult matter to convince operating officers that it is more desirable to burn defective ties than to treat them; yet, it is a fact that ties have been treated which cost the railroad more than if they had been burned because of the fact that they failed mechanically very soon after installation and had to be removed from the track inside of three or four years. The cost of treatment, installation and removal was more than the cost of the untreated ties.

One very successful method for determining the actual condition of crossties at the time of treatment, which is in use on several railroads, is to cut a small section from each end of the tie as the first function in the operation of adzing and boring the ties. Of course this cannot be done safely with ties in which anti-splitting devices have been inserted. The species which are most subject to decay are yellow pine and the TC group of the standard specifications, and in order that these ties may be subjected to this inspection several railroads do not apply anti-splitting devices until after the ties have been through the adzing and boring operation. This practice is not standard, however, as some railways consider the application of the anti-splitting devices more essential.

Exposing the end sections of ties in this manner is the best method yet devised to obtain an almost positive insight into their condition. The expense incident to the operation is small and the necessary machinery is easily added to the standard adzing and boring machine. In practice, it has been shown definitely that many ties which will pass the keenest sort of visual inspection are found to contain sufficient decay to warrant their being classed as unsound after the ends have been sawed off.

Some railways have a system of marking defective ties that are treated, and instructions are issued designating the placing of such ties in tracks that are used for storage purposes, or where little traffic is moved. The difficulty of such a policy is that sooner or later some of these defective ties are used in emergency work in the main line where some of them fail in a few years. In such cases the blame is usually placed on the treatment, whereas the failure was purely mechanical.

From a standardization viewpoint, it is recommended that there be no change in the standard specifications for the purchase of ties, in so far as freedom from decay defects is concerned. Moreover, we cannot develop a standard whereby it might be made possible for a railroad to change its instructions to the operators of any wood preserving plant in order to permit ties exhibiting decay to be considered satisfactory for preservative treatment.

Freight Car Loading

WASHINGTON, D. C.

REVENUE freight car loading in the week ended September 3 amounted to 559,727 cars, an increase of 21,754 cars as compared with the preceding week. This is the fourth consecutive week to show an increase as compared with the week before. While an increase at this time is seasonal it is much more pronounced than was shown at this time last year, when loadings showed a reduction at the end of August. As compared with the corresponding week of last year the total is a reduction of 200,144 cars, and as compared with 1930 it is a reduction of 296,922 cars. Increases as compared with the week before were shown in the loading of miscellaneous, merchandise, grain, coal, and coke, while decreases were shown in the loading of forest products, ore, and livestocks. The summary, as compiled by the Car Service Division of the American Railway Association, follows:

Revenue Freight Car Loading

Week Ended Saturday, September 3, 1932

Districts	1932	1931	1930
Eastern	126,833	168,063	181,464
Allegheny	102,445	154,362	167,089
Pocahontas	38,051	49,068	52,031
Southern	82,458	104,217	118,536
Northwestern	72,870	111,457	137,351
Central Western	89,781	114,233	128,941
Southwestern	47,289	58,471	71,237
Total Western Districts	209,940	284,161	337,529
Total All Roads	559,727	759,871	856,649
Commodities			
Grain and Grain Products	40,457	38,248	50,056
Live Stock	18,480	22,533	24,691
Coal	105,047	133,019	138,138
Coke	3,428	5,152	8,537
Forest Products	16,459	27,943	37,109
Ore	5,988	35,155	47,451
Mdse. L.C.L.	174,493	218,286	211,289
Miscellaneous	195,375	279,535	339,378
September 3	559,727	759,871	856,649
August 27	537,973	763,551	984,510
August 20	518,642	748,600	940,558
August 13	512,431	743,626	922,823
August 6	496,033	734,730	904,157
Cumulative total, 35 weeks	18,669,811	25,795,595	31,508,909

The freight car surplus on August 14 was 742,928 cars, a reduction of 20,632 cars as compared with the number on July 31. The total included 387,734 box cars, 284,384 coal cars, 29,993 stock cars, and 13,066 refrigerator cars.

Car Loading in Canada

Car loadings in Canada for the week ended September 3 amounted to 41,396 cars as against 40,826 cars for the previous week, but this increase of 570 cars was less than the usual seasonal increase and the index number dropped from 66.59 to 63.80.

Car loadings in the five weeks from the first of August to September 3 numbered 196,261 cars or practically ten thousand more than in the preceding five weeks. The gain was all in the western division. Export clearances of wheat in the last week of August amounted to 4,197,424 bushels as compared with 1,843,790 bushels in the corresponding week last year. Export clearances of wheat for the first five weeks since the first of August are more than six thousand bushels ahead of the same period last year.

	Total Cars Loaded	Total Cars Rec'd from Connections
Total for Canada		
September 3, 1932	41,396	17,310
August 27, 1932	40,826	16,332
August 20, 1932	39,652	14,610
August 29, 1931	49,145	22,235
Cumulative Totals for Canada		
September 3, 1932	1,421,503	670,962
August 29, 1931	1,680,320	912,454
August 30, 1930	2,087,162	1,182,736

Norfolk & Western Cuts Corners in Stores Work

Simplified stock books facilitate economical stock control—Centralized accounting and motorized handling also developed

A View of the N. & W. Storehouse

THE establishment of a central yard by the engineering department for maintenance of way material, described in a recent issue of *Railway Age**, is only one of the notable features of present supply operations on the Norfolk & Western. Since the building of several new stores and oil houses and the remodeling of others, the mechanical stores of this road have witnessed several readjustments in methods. Stores accounting has been centralized, slow-moving materials have been more effectively identified, an ingenious system of stock records has been developed, and the motorization of material handling has been considerably expanded.

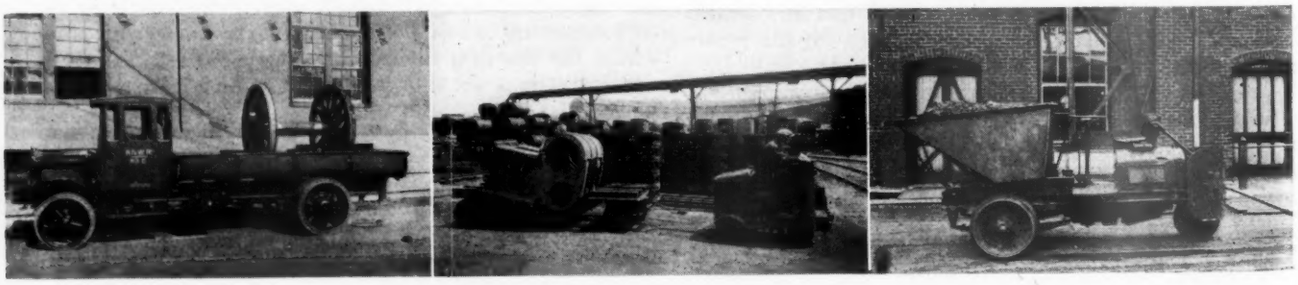
Centralizing the stores accounting is the most recent of these developments. Previously each storehouse maintained record of receipts and issues, while the general accounts were kept in the office of the general store. By centralizing all the accounting at the general store, appreciable reductions have been possible in payroll expenses and, at the same time, uniform pricing of materials disbursed and accuracy in charging the material to the proper accounts are obtained. Previous delays experienced in securing detailed information about the stores operations have also been eliminated with complete records of receipts and disbursements available in the central office.

During the early part of 1930, when business began to decline, there was a marked decrease in the consumption of materials and supplies. Ordinarily, a decrease in consumption is followed by a corresponding increase in the material and supplies account, sometimes continuing for a period of several months. With dependable stock records and the intelligent application of information furnished by the using departments as to their requirements of material for maintenance work, it has been possible on the Norfolk & Western to reduce the stock balances in keeping with reduced income and, at the same time, render satisfactory service to the users of material.

The N. & W. Stock Books

The stock records consist of stock books at each store containing separate pages for each item of stock, and a system or master stock book at headquarters which covers only the more important items of stock at each point. A sample stock record sheet is shown in Fig. 1. The article is described and given a reference number on one side of the sheet, and a four-year record is kept by using both sides. Loose-leaf binders make it possible to

* *Railway Age*, May 28, 1932.



The Motorized Equipment Includes Various Machines

Equipment Used in Material Handling on the Norfolk & Western

reduce or expand the size of books to accommodate the number of sheets required for each group or class of material. In some instances, the classes are sub-divided, particularly where a large number of items make up a class and it is necessary to assign a portion of the stock-keeping duties to more than one employee.

New or revised stock record sheets for the general and line stores are prepared by the hectograph process performed in a stock record bureau, which also prepares in like manner, instructions pertaining to revisions of specifications, changes in standards, etc., and circular letters. The re-writing of the stock books is "staggered" so that their usefulness as active records will terminate at different intervals, enabling the stock record bureau to prepare new books for distribution without interfering with the work of currently revising stock records and preparing sheets for new items added to stock. When it becomes necessary to re-write a stock record sheet, the old record is retained and stamped "For Future Orders See Sheet No. —," stating the authority for making the change. This type of stock book affords the flexibility of a card system without permitting the misplacement of records and provides comprehensive information about each item of stock.

Inactive Materials Centralized

At one time, it was customary to carry expensive, though infrequently used materials, at many locations on the line. This not only resulted in an unnecessary investment in material, but did not always insure the availability of material at the point required. Centralizing all materials of this kind at strategic points, preferably at division or district stores, and having the local stores' records properly marked to indicate the location of such items, has made it possible to effect delivery within a few hours and, at the same time to keep down the investment.

Special Type Stock Book

The stores of the Norfolk & Western also have a master or consolidation stock book, which has also proved beneficial in stock control and supply service. The distinctive feature of this record, which was developed in 1926, is that it does not cover all the material in stock, but is restricted to the more expensive items, consisting of approximately 4,500 parts for locomotives, freight and passenger cars, yard cranes, derrick cars, ditchers and certain units of shop equipment where interchangeability exists. The master book furnishes a perpetual record of these items, permitting their immediate transfer from one point to another when the occasion demands, thereby providing material for repairs to equipment without delay and in numerous instances making it possible to defer the manufacture or purchase of materials. The cost of maintaining such a record as compared to the benefits derived is negligible. Monthly reports of the master book materials on hand are submitted by each store to the general storekeeper's office on scheduled dates. Thereafter, the local storekeepers report immediately to the master stock bureau the issuance or transfer of any master stock book item to insure that the records will be constantly up to date.

For record purposes, sheets similar to that shown in Fig. 2, are used. These are single-item sheets, good for two years, which describe the material, give its purpose, and show the location and reference number of the store. The top number in any column designates the quantity on hand, and the number below it shows the quantity due at the designated store. The other numbers show any transfers made after the monthly report. For example, let it be assumed that Roanoke, which is Store No. 1, had 10 Class M-2 front cylinder heads on hand when this stock was checked in May, and that a transfer notice was subsequently received by the master stock bureau that two were shipped to Portsmouth (Store No. 21), the entry in the master record "2 to 21" thus shows the quantity shipped and the receiving point.

Materials controlled by the master stock bureau are so identified on each storekeeper's stock record, bin label, and in many instances, on the material itself when physical characteristics will permit.

Each store's monthly reports of master stock bureau materials are prepared on a form requiring only the Section or Class Number, the Item Number, the Amount on Hand and the Amount Due, as shown in Fig. 3. This eliminates the necessity of writing a detailed de-

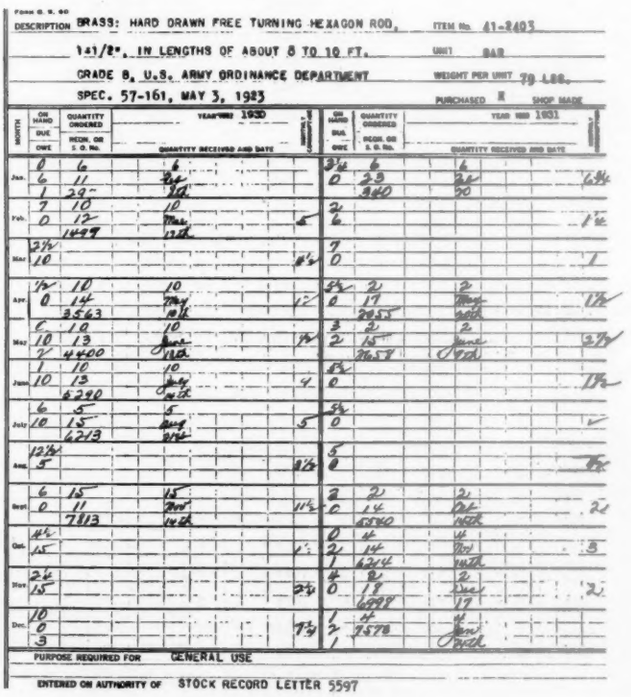

DESCRIPTION BRASS: HARD DRAWN FREE TURNING HEXAGON ROD,
ITEM No. 41-2403
1 1/2". IN LENGTHS OF ABOUT 8 TO 10 FT.
UNIT BAR
GRADE B, U.S. ARMY ORDINANCE DEPARTMENT
WEIGHT PER UNIT 79 LBS.
SPEC. 57-161, MAY 3, 1923
PURCHASED X SHOP MADE
PURPOSE REQUIRED FOR GENERAL USE
ENTERED ON AUTHORITY OF STOCK RECORD LETTER 5597

Fig. 1—Stock Record Maintained at East Storehouse—One Item of Material Per Sheet

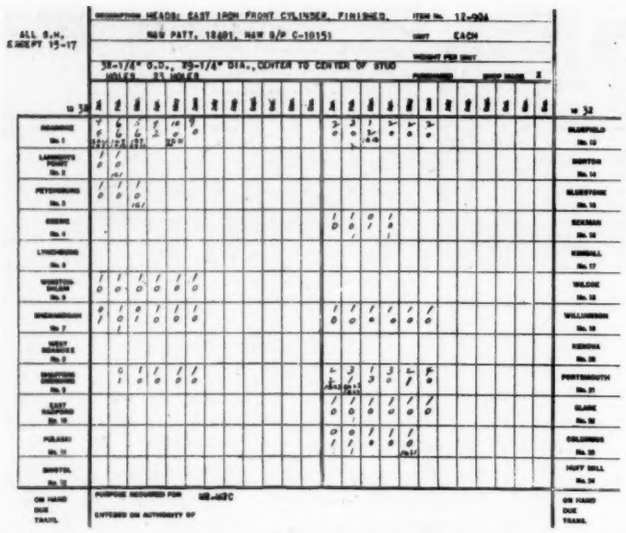


Fig. 2—A Page from the Master Stock Book—One Item per Page and Only Important Items Considered

scription of each item. These reports are scheduled to reach the general office at the time when materials are ordered on the purchasing agent and shops for replenishing the general store stock. This provides an orderly arrival of reports which prevents congestion and delay in bringing records up to date. Material due on unfilled requisitions when the report is made, is shown on the report and after material is received it is reported in the subsequent month's master stock book inventory.

When a master stock book item at any storehouse is issued or transferred, the notice is prepared and forwarded to the master stock bureau the same day, to insure that the master record will constantly show the correct status of material. The effectiveness of this work is facilitated by the use of item reference numbers to describe the material in the reports.

G. S. 76

NORFOLK AND WESTERN RAILWAY COMPANY

MASTER STOCK BOOK INVENTORY TO BE SENT TO THE GENERAL STOREKEEPER ON REGULAR STOCK CHECKING DATES TO BE LISTED IN THE MASTER STOCK BOOK.

SECTION 12 LOCATION ROANOKE DATE 6-27-32

Item Number	Amt. on Hand	Amt. Due on Req.	Item Number	Amt. on Hand	Amt. Due on Req.	Item Number	Amt. on Hand	Amt. Due on Req.	Item Number	Amt. on Hand	Amt. Due on Req.
817	3	0	878	5	0	904	9	0	1074-0	7	0
818	1	0	879	9	0	906	0	0	1075	9	0
819	2	0	880	14	0	907	3	0	1076	6	0
820	7	0	881	8	0	908	4	0	1076-K	5	6
821	0	0	882	6	0	909	3	0	1077	9	0
822	1	0	885	9	0	910	4	0	1079	5	0
823	1	0	887	4	0	911	3	0	1081	7	4
824-A	1	0	894	2	0	915	11	0	1093	2	0
825	4	0	894-A	2	0	916	0	3	1094	7	0
861	2	0	894-B	2	0	917	3	0	1095	0	12
862	3	0	894-C	3	0	923	1	2			
863	0	0	894-D	2	0	927	4	0			
864	0	0	894-E	6	0	928	5	0			
868	1	0	894-F	7	0	935	4	0			
869	9	0	895	0	0	945	0	0			
870	1	0	896	0	0	951	3	0			
871	5	0	897	5	0	1021	2	0			
872	0	3	898	5	0	1022	5	0			
873	3	0	899	8	0	1070	5	0			
875	5	0	901	6	0	1072	6	2			
876	0	3	902	1	0	1073	2	12			
877	0	0	903	2	0	1074	15	0			

Fig. 3—Sample Form Used in Reporting Inventory of Materials Considered in Master Stock Book—Space for 88 Items on One Page

Recognizing the importance of adequate transportation for handling raw materials and finished products from shop departments to storehouse or point of use, the Norfolk & Western has built concrete and other hard-surfaced roadways to connect all manufacturing, equipment-repair and storage locations, at Roanoke and Portsmouth, operates a considerable equipment of automobile trucks and other material-handling equipment. Both gas and electric motive power units are used, and some of the equipment is of ingenious design.

With the exception of special units assigned to exclusive use of the stores department, the equipment is assigned to the mechanical department, with the needs of both departments co-ordinated by a shop transportation dispatcher.

Container Methods Also Used

The road has also made a beginning with container methods in supply work by equipping the stores during the early part of 1930 with 4 jack-lift trucks, 200 skids and 200 boxes. This equipment is used primarily between the general store at Roanoke and the division stores at Portsmouth and Bluefield.

Considerable expense in packing shipments for the division stores is avoided by using the platforms and boxes, as it is not necessary to wrap finished boiler mountings and bearings and similar articles with the care previously required and considerable re-handling expense is avoided. As it is customary to load cars for division stores weekly, and sometimes twice a week, the platforms and boxes are constantly moving under load. On the return trip to the general store, they are loaded with materials coming in for repairs, usually with old journal bearings, air brakes, air signal and steam-heat hose, as well as many boiler mountings, globe valves, cutout and angle cocks, triple valves and numerous other items which the modern facilities and practices at the Roanoke shops make it more economical to repair at the one location. The value of the motorized equipment in the road supply work has been particularly demonstrated with the smaller shipping forces employed under present conditions.

Security Owners Report on Highway Competition

(Continued from page 395)

nite economic function. The problem therefore is to evolve a public policy which will assure the most economic use of all transportation and that will permit each to grow.

"In the early days of the motor the railroads were misled into encouraging the building of highways in the belief that they would provide additional traffic by providing feeders and through the tonnage of highway materials, as well as the products of motor vehicle manufacturers. In most instances, however, the railroads did not forsee the competition which would result from highway development. From 1920 to 1930 motor vehicle registration increased from one million to nearly three and one-half million units, or 245 per cent.

As to regulation, the statement by the Security Owners continues: "A railroad cannot lower its rate to meet competition without submitting the new rate to the

Interstate Commerce Commission for approval. The rate may be refused as being discriminatory or as not sufficiently compensatory. The Commission has found that some truck operators maintain substantially lower rates in one direction than in another in order to induce return loading when there is a heavier volume moving in one direction than in another. At present there is no control over interstate movement of trucks nor is there uniformity in state laws respecting their use of highways. There is no similarity in laws governing weight limitation or taxation of trucks. Truck regulation is minor compared to railroad restrictions. This gives to the trucks definite advantages over the railroads in the competition for business."

The Security Owners likewise contended that the property investment placed the railroads at a disadvantage against motor operation, by reason of less expensive equipment costs per unit and of the freedom from right-of-way and terminal costs enjoyed by trucks.

"In spite of inroads upon carload traffic which the trucks have made upon railroad revenue, the chief competition is felt in the less-carload traffic," the report cites, "and as the less-carload traffic diverted is mostly higher profit traffic, the railroads have suffered seriously from this financial encroachment.

"Then again, the railroads at the urgent solicitation of automobile manufacturers built large capacity freight cars by the thousands, only to have those cars stand idle the last few years while those manufacturers moved their output over the highways. The idle capital invested in idle equipment has been very expensive to the railroads because of this fundamental change in the handling of automobile traffic."

Mr. Harrison's report contended that taxation provided one of the chief burdens upon railroads in favor of motor traffic. "It has been contended," the report stated, "that highway expenditures are largely responsible for the great increase in railroad taxation in the last ten years and that railroads are forced to subsidize their competitors. Railroad taxes in 1929 amounted to four hundred millions of dollars, or 6.3 per cent of operating income. Highway expenditures increased, 1930 over 1923 more than the tax paid by the railroads. Of the total highway income received 1923-1929, users of the highways through gasoline and motor vehicles taxes paid only 32 per cent, the balance having been raised through bonds, appropriations from general property tax and federal aid. It appears, therefore, that both the general public and the railroads are subsidizing the highway carriers to the extent of 55 per cent of total cost of maintenance and development."

There is an increasing tendency by the railroads to enter the motor vehicle transportation field, illustrated by the statement by Mr. Harrison that 32 railroads have invested $46,000,000 in motor transportation companies controlled by them. The activities are devoted largely to bus operations, where there is not the possibility of regaining as much traffic to diminish net losses as with trucking. A number of railroad companies are conducting experiments with rail-highway service, containers service, etc., designed to protect traffic from competition with trucking companies. In most instances, where the railroads have tried to regain some of their lost traffic with some form of truck service, though without co-ordination, their efforts have not been very successful.

"Federal regulation as to rates and convenience of service, is essential to true rail-highway co-ordination. Under present conditions it is impossible to carry shipments using rail-highway service on through billing. Under adequate regulation the irresponsible carrier would disappear. Competition between rail and highway carriers would more fully respect the rights of shippers and the public and the independent trucker would make way for the co-ordinated facilities capable of rendering that service at lower cost. The private carrier transporting his goods to destination and hauling return loads at any price would be eliminated. Relieved of such competition, the railroads would benefit in credit and financial stability.

"Discrepancies existing in state regulation as to size and weight of vehicles, lack of uniformity in gasoline taxes, etc., should be corrected. The highways should be made as nearly self-supporting as possible and the maximum amount consistent with continued utilization should be collected from those operating over them. It likewise stands to reason that those operators using public facilities to perform commercial service should pay a premium for the privilege."

Among the conclusions drawn by Mr. Harrison in his report were the following:

Railroads are hampered in meeting motor competition by regulation, while regulation of highway carriers is sporadic and often ineffectual.

The competitive advantages of railroads over trucks are: greater permanency of operation, greater dependability and greater financial responsibility.

Revenue loss to railroads has been felt chiefly in less-carload business.

As highway traffic developed the railroads not only lost the tonnage formerly derived from haulage of materials but they felt the inroads upon their traffic because of the enlarged highway system tapping new markets and new regions for their motor competitors.

The tax funds spent in creating our national highway system have fostered a tremendous over-capacity of transportation facilities.

The railroads spent 5½ billions of dollars on their plants 1920-1929, which equipped them with surplus capacity in the peak year 1929, while the increased investment in motor vehicles and roads, 1929 over 1923 was $32,117,000,000.

Uniform principles of taxation should be adopted by the states so that highway users would contribute the maximum amount of tax funds consistent with utilization of the roads. Protection of the public likewise demands uniform regulation of size, weight and speed of motor vehicles.

The future of the railroads lies in co-ordination of their points of superiority with those of the truck, thus providing an economic service superior to either. The public would be better served and the highways relieved of much useless congestion. The efforts of the railroads should be directed towards these ends.

Passengers Unanimous in Approving Air-Conditioned Service

(Continued from page 397)

this feature is a valuable talking point and believe it will be a factor in securing additional business for these trains.

5. Passenger comment favorable; appreciate new features and ask "When will the entire train be equipped in the same manner?" There seems to be quite a demand for air-cooled train service."

Many others among the reporting roads also operate air-conditioned diners only. The reply of one of these which is typical says: "While we have no statistics showing increased passenger traffic because of these improvements, there can be no question as to the preference of the public for the service. This is evidenced by frequent favorable comment on our action."

Finally railroads which have thus far confined their major activities along these lines to the precooling of sleeping cars at terminals also find their patrons ever ready to applaud this innovation for the added comforts which it brings to the Summer traveler.

New Model TracTracTor

A NEW model, known as the Model T-40 TracTracTor, has recently been added to the line of crawler tractors manufactured by the International Harvester Company, Chicago. This model develops a maximum drawbar horsepower of 40 and a maximum engine horsepower of 52. It is adapted to the operation of bulldozers, backfillers, shovels, snowplows, scrapers and graders as well as to various other operations incident to heavy construction work.

The six-cylinder engine of the tractor is of the valve-in-head design and has removable cylinders of 3⅝-in. bore and 4½-in. stroke. The cooling system is designed to provide a uniform temperature for the efficient utilization of the fuel and to assist proper lubrication. Large positive-acting plate steering clutches, which are housed in the rear compartment of the main frame, are said to comprise a new feature in crawler-tractor design. Forty-four ball bearings are used throughout the tractor. Each crawler has five lower

The Model T-40 TracTracTor of the International Harvester Company

track rollers and two upper rollers, each roller and the front idler shaft being enclosed in a bath of oil.

The steering clutches, transmission and brakes of the tractor may be easily inspected, adjusted or removed through top and rear cover plates, while special dust seals protect all bearings and shafts. All controls are within ready reach of the operator and the view from the driver's seat is unobstructed.

The overall length of the tractor is 141 in., the overall width is 61¾ in., the height over the air cleaner top is 73½ in., the drawbar height (high) is 17$\frac{11}{16}$ in. and (low) 10$\frac{15}{16}$ in., the tread width is 47¾ in., the track shoe width is 16 in. and the length of the ground contact is 70½ in. The tractor has five forward speeds of 1¾, 2¼, 2¾, 3¼ and 4 miles an hour, respectively, while in reverse the speed is 2¼ miles an hour. The capacity of the fuel tank is 45 gal. and the approximate weight of the tractor is 10,600 lb.

ONE OF THE FIRST TANGIBLE RESULTS of the plan under which the London & North Eastern and London, Midland & Scottish of Great Britain are to pool revenues from traffic between points where they are in competition is the announcement that passengers holding ordinary round-trip and tourist tickets issued by one of those companies may make their return journey over the line of either. This inter-availability of tickets also applies to week-end and season tickets, outside the London suburban area.

Communications . . .

Inconsistent Government Policies

NEW YORK.

TO THE EDITOR:

Everyone who knows anything, knows that the railroads are the backbone of the country—it is not necessary to amplify the fact. It is also well known that the railroads at present, haven't enough business to pay them for running—or to keep more than 60 to 70 per cent of their facilities at work.

Yet, we are confronted with another proposed "Noble Experiment," the Great Lakes to the Sea waterway—another wallop to the jaws of the already groggy railroad systems of North America. They say this project will cost approximately 800 million dollars; but you can add 25 or 30 per cent to the estimate, and be nearer the real cost when completed.

True, this work will furnish employment to many men, but is that fact going to compensate for the further crippling of the railroads, and the additional tax burden on the people? Is this great waterway going to benefit the farmer? I doubt it, and thoroughly agree with the report of the study by the Food Research Institute of Stanford University which you published September 10.

But, what I do not understand, is why the government, with one hand, offers to help the railroads through the R.F.C. by loaning them money at 5 per cent to repair and buy equipment (of which they already have more than they can use under present conditions) and, with the other hand, start on a project that when completed, will vastly lessen the business of the roads. What the railroads need, is more tonnage to handle, a proper adjustment of freight rates, and above all a proper adjustment of wages.

Then again, it wouldn't hurt much if the roads could be relieved of some regulation, by transferring some of it to the truck, bus and inland water transportation.

G. E. GRAHAM.

Government Pool for Railroad Equipment

CHICAGO.

TO THE EDITOR:

In the *Railway Age* for July 23, page 113, there appeared an article based on a letter sent to President Hoover suggesting a plan whereby, with the aid of the Reconstruction Finance Corporation, the railroads of the country could secure financial aid in the present emergency and at the same time take initial steps toward bringing about the common ownership by all of the railroads of freight car equipment. The article was written by an ex-railroad man with whom I am not acquainted, but I think that ex-railroad men, like political officers, ex-husbands, and the like, are dangerous animals to be running at large even though I, at one time, was also a railroad man. The article suggests the pooling of all railroad cars and the abolition of the private car lines. Upon private car lines I can speak with authority, since I have been in that business for 15 years.

I do not see that the country would be any better off by loaning money to a new organization than it would by loaning money to an old one. It is like robbing Peter to pay Paul. It looks as if Uncle Sam was going to have to be the banker for all industries, states and municipalities, so why not assume the whole responsibility. What difference would it make?

There is one and only one phase of his argument that is worthy of attention and that is the reduction of empty car mileage, but surely there are a sufficient number of railroad men with brains enough to solve that problem without going to the extreme suggested. A good portion of all freight traffic and that which earns the best revenue, including fruits and vegetables, sugar and flour, must be moved in special equipment: consequently, the conditions and requirements on the roads that serve the northwest are entirely different from those that serve

other areas. If private car lines and the special equipment supplied by them are eliminated, the business they handle will be driven from the railroads. Under the pooling arrangement there would not be a car fit to carry food products. Special cars provided for moving fruit products can only be used for moving high-class specially packed dry merchandise and those cars must necessarily move empty.

EX-RAILROAD MAN.

Dining Cars, Buses and Dust

VERONA, N. J.

TO THE EDITOR:

The letter of P. D. Anderson, in the *Railway Age* of August 27, arouses me to mention certain changes in passenger service which might materially reduce the drift away from railroad travel and enable the roads to cut materially the deficit that reduced passenger travel now causes.

The outstanding fault in the great majority of long-distance passenger services in this country is the matter of providing meals for the passengers. The extent to which even Pullman passengers bring food aboard with them is noticeable. This is primarily due to the fact that the prices charged in diners and in station restaurants are conspicuously high. This is in contrast to the situation when traveling by bus or auto: food is available at reasonable prices along the road, and the buses stop at stands providing meals at low prices.

During the high prices of 1918 and 1919 the dining service of the South African Railways actually showed a steady profit while furnishing breakfast at 60 cents, lunch at 85 cents and dinner at $1. This was possible because the service was conducted on a *table-d'hôte* basis, with only a limited provision of separate dishes *á la carte*. The breakfasts included a choice of three fruits, of two cereals, and of three egg or meat dishes, with rolls and coffee or tea. The lunches and dinners had three meat dishes and three desserts to choose from. The food and service was as good as any we have in this country.

A similar sort of service in dining cars, with an almost total elimination of the great variety of dishes *á la carte*, ought to make similar prices possible in this country. The present high level of prices not only repels persons from traveling by rail, but causes many to eat before or after starting a journey instead of en route.

The introduction of the cafeteria car, already in use as the "all day lunch" on the Southern Pacific lines, will care for a goodly portion of those who cannot or will not afford dining car service. The fact that these cars serve as coaches as well as for their primary purpose, enables the company using them to provide that extra half-car space needed for additional passengers using the through trains for short journeys without extra expense.

In the larger cities, the station restaurants and lunch rooms more often than not are appreciably higher in price and slower in service than private restaurants across the street from the station. A change in these particulars ought to bring enough additional business to the station restaurants and lunch rooms to cover the reported large overhead costs. I have specifically in mind two terminals in the New York area where equal or better food with quicker service, can be obtained outside the terminals for half or less of the cost in the stations.

The South African Railways further use the dining car as a lounge or club car between meals, eliminating the need for a special club car on most trains. This simple provision could easily be introduced in this country.

Aside from the question of provisions for food, there are several possibilities of increasing the traffic, without great cost that the railroads seem determined to neglect. One of these, and a very useful one, is the rail-bus. Instead of the heavy and costly rail motor cars now used, branch lines or lines with light traffic could be operated economically with a plain every-day bus, such as is used on the highway, but fitted with flanged wheels and running on the rails.

Let it be perfectly clear that I am advocating the using of the ordinary modern motor bus, of the type used for interurban and long-distance service. It is true that the railroads would have to operate such buses with two men as a crew, instead of with a lone driver. The saving in hauling of dead weight is where the economy comes in. The use of such buses for after-theater trains in suburban areas may help to bring passenger traffic back to the rails. As things now stand, the railways in suburban areas such as northern New Jersey have largely left this service to the highway buses, and in some cases have actually taken off their former after-theater trains or set their times too early for the closing-time of theaters in these days.

On through trains, some of the railroads that advertise their scenic features have timed their services so that the most interesting features, that would attract passengers, are passed at night. The question of dust and dirt as affecting passengers has not been given all possible attention by a number of the lines.

STEPHEN G. RICH.

Managements Should Encourage Employee Associations

DALLAS, TEXAS.

TO THE EDITOR:

The letter from R. S. Hieryonamous of Mobile, Ala., published in your August 6 issue under the caption of "Railroad Men Must Become Active in Politics" voices a timely criticism of the failure of railroad management generally to appreciate the necessity for political self-preservation and to realize that in their employees they have available one of the most powerful political weapons in the country.

Votes are the legal tender of politics and the first consideration of politicians. That this is a fact is proven by the consideration received by organized minorities in city, county, state, and national politics. A revival of railroad earning and railroad employment and the passing of the depression will not necessarily be concomitant. The constant growth of highway, water, and air transportation nurtured by government subsidies constitutes an evil independent of the depression and the only remedy lies in legislation which can be secured only through political influence.

Railroad employees are ready now as they were never ready before to co-operate to the fullest extent with railroad management in any effort which will improve and protect railroad earnings and railroad employment. The public, convinced of the justice of railroad opposition to unfair competition is more sympathetic towards the railroads and more amenable to conversion to the railroad cause than it has ever been before.

This is the opportune time for the railroad fraternity to launch a determined fight for common justice. They have available in the large army of American railroad employees a powerful instrument ready for immediate use. The value of this instrument, however, is contingent upon the amount of leadership and encouragement which the management is prepared to give to employees' protective organizations.

The writer happens to be a minor officer in an employees' organization which was formed for the expressed and only purpose of combating subsidized transportation. This organization which is confined to one county where there are approximately 2500 railroad employees has received every possible encouragement and assistance from the management of the railroads traversing this county. In a primary election just held, the organization selected six individuals from a field of some forty candidates for six places in the state legislature, and five of these individuals were nominated, (which is equivalent to election in this state). The sixth man who was not supported by the organization took occasion on his own initiative after being nominated to have a conference with the head of the organization and to give assurance that the railroad employees would receive a square deal from him. No secret was made of railroad employees' participation in the election or of their reason for such participation. Votes were solicited upon the plea for a square deal. Five thousand copies of a letter stating the employees' position and asking for support for their candidates were mailed to personal friends and business acquaintances of railroad employees. If there was any resentment on the part of the public against

participation of railroad employees in politics it was never evident; even the opposing candidates studiously avoided any public reference to the subject, proving that they feared to make it an issue.

Local employees' organizations are not sufficient to effect a remedy for present unsatisfactory conditions. Regulation of interstate highway transportation can only be accomplished in the national Congress. Unity of action can be accomplished only through the formation of a state organization in each state composed of local organizations, and a national organization composed of state organizations. It is only by such a national organization that action can be unified and real results obtained.

Viewing it from the obscure position of a railroad employee in a minor unofficial capacity it seems to me from the limited experience we have had trying to form a state organization in this state, that the management of some of the railroads are fearful of such an organization getting into the hands and becoming the tool of union organizers; still viewing it from my obscure position I can not avoid the conclusion that there is enough legal talent available to confine the functions to opposition to subsidized transportation and to make such organizations essentially employee organizations and yet obviate any such eventuality.

The railroad management of the country is a political nonentity and without the organized help of railroad employees is politically helpless. The railroad employees on the other hand though a potential political power, represent a power that will remain dormant unless released through the leadership and cooperation of the railroad management.

The railroads have tried political pussyfooting for more than a quarter of a century and the present state of railroad affairs indicates a failure of that policy. A fight in the open could not produce less favorable results.

D. C. Oliver.

How Revive Public Interest in Railroad Service

New York.

To the Editor:

I think the present policy of the *Railway Age,* in encouraging letters discussing passenger matters, is highly commendable, for that phase of the railroad situation not only is perhaps the most interesting one at present, but one in which far greater profits may be lurking than many railroad men believe to be the case.

Whether or not this eventuates depends upon the degree of alertness and activity evinced by the railroads in their promotional program. One reason for my commenting on this is the fact that one of your correspondents, John W. Cooper, of Hollywood, Calif., refers, anonymously, to a statement of mine, as a newspaperman, to the effect that news from shipping companies and air lines came in to the office almost by the sackful, while railroad items were lamentably few in number. That was the fact. But it is not the mere sending out of press statements which is to determine the volume of material which the railroads will get into the press—it is the quality and readability of them which count.

For some reason or other, ships and airplanes seem to grip the public fancy in a way which railroad trains do not. This partiality extends to most editors and copy-readers. New York newspapers will publish columns of "news" which, actually, is merely an abbreviated sailing-list of the names of passengers known socially or in business. They will, similarly, publish weekly pages, or columns, devoted to free advertising for aviation, but for some unaccountable reason will not give the railroad industry a fair break. When the Pennsylvania Railroad undertook what I thought was a constructive plan of sending out the names of prominent travelers on its trains, it was a "flop." The papers simply would not give space to this information.

But I am not sure that the metropolitan press is to be blamed wholly for this. I wonder if the contact men representing the railroad industry have been as active as they might have been in visiting around among the newspapermen. That, at least, was my experience, to a certain extent—it being, apparently, the thought that if newspapermen wished to establish a contact with the railroads they (the newspapermen) should take the initiative. I do not mean that this was universally the case, but it was in some instances. This attitude, I believe, is wholly wrong, and may account, to an extent, for the failure of the railroads' news to receive wider publication.

I think a great many railroad officers confuse publicity with advertising. They regard the terms as interchangeable, and one as tieing definitely into the other. In an advertising sense, I wonder if it ever has been definitely impressed upon railroad executives that even in the peak year of 1929, total railroad advertising expenditures were only approximately $15,000,000. This was about 1.5 per cent of passenger revenue and about 1/3 of 1 per cent of total revenues. This proportion of advertising to earnings is ridiculously small. Department stores and other industries with something to sell average 4 to 6 per cent of their earnings upon advertising, and when business becomes a bit slack they increase this ratio (the past two years are, of course, unavoidable exceptions to this general axiom).

Now with so negligible an amount spent on advertising in the press (and, incidentally, this $15,000,000 included the cost of printing timetables, overhead of advertising departments and other sums not spent on advertising, *per se*) the newspapers are not particularly impressed when they receive publicity items about the railroads. I do not mean to imply that the higher type of papers can be bought—that they give news space in proportion to the amount of advertising—but on the other hand, these considerations were not ignored in my own former paper, and that is unquestionably the case in most publications.

I discussed with one of the leading railroad presidents recently this matter of rail advertising, and he ventured the opinion that if the railroads spent too much in this manner, the I. C. C. would question them. I doubt this very much. In the first place, the railroads are permitted to earn a "fair return," under "efficient and economical management," and unless a normal sum is spent on advertising, then the railroad industry is *not* endeavoring to function in the most efficient manner, for all precedent, in every business great and small, has proved inescapably and conclusively, that persistent and consistent and *judicious* advertising has put that company's product over successfully. Look at Coca Cola, Ford, Wrigley, Macy's, Statler, Pepsodent and Frigidaire, merely as typical, and diverse, industries which have proved this fact.

To put the railroad industry back on its feet, it is right and appropriate for the railroads to appropriate at least $10,000,000 (aside from their individual advertising) to tell the story of the railroad industry in newspapers, magazines, by radio, poster and billboard. Why all this secret publicity, if it is earnestly desired to bring business back to the railroads? One cannot pick up any magazine—conservative or radical, literary or humorous, without finding the back page, or a prominent space, carrying the message of the American Telephone & Telegraph Company, and it must be more than a coincidence that numerous public service commissions have admitted the propriety of this industry's earning 7 per cent on its invested capital.

Out of this $10,000,000 investment in railroad advertising a part should surely be devoted to advertising for freight business. Don't the roads *want* freight traffic? If so, why don't they so tell the world by means of the printed word? A portion, of course, would be spent in telling the public that travel by rail "Is Safe, Quick, Comfortable, Convenient and Cheap," under some suitable slogan of that general nature. The remainder of the fund would go toward general exploitation, contact or promotional work, with traveling exhibits to go to tourist hotels, merely to stimulate, and to re-create, an interest in railroads. Such an interest *can* be aroused.

Franklin Snow.

The Honor Roll of officers and employees in the service of the New York, New Haven & Hartford, which includes all those who have been in the employ of the company for 50 years or more and are still active, now numbers 100 individuals. Each of these has been presented by the company with a diamond-studded gold emblem, suitable for wearing on the lapel. Substantially the same number appear on the list of pensioners.

Odds and Ends . . .

A Too-Complete Address

There is at least one citizen of Dubuque, Iowa, who has only a very hazy knowledge of the geography of Canada. A few days ago the superintendent of the Canadian National at Kamloops, B. C., received a letter from this Iowan addressed as follows: "Province of British Columbia, Kamloops, Western District, North Saskatchewan, Manitoba, Ontario, Canadian National Railways, Second Managers Office, Canada." This was all printed in capital letters which covered the entire face of the envelope. When the letter was opened —yes, it actually reached its destination—it was found to contain a request for information concerning Kamloops. The writer was sent a pamphlet by the board of trade, but the envelope is being kept by the Canadian National as a museum piece.

They Know How in Tulsa

For an example of errorless freight handling, go to the St. Louis-San Francisco freight station in Tulsa, Okla. In July, the Tulsa station forces, for the thirteenth consecutive month, won the pennant given by the Frisco to the station perpetrating the fewest errors in freight handling. Not only did their record enable the Tulsa employees to keep the pennant but they also set a high mark for accuracy by handling 15,101 different shipments without a single error. This makes the proud records of a lot of baseball players look pretty silly.

In the second group of stations on the Frisco, Oklahoma City also did very well, retaining first place in its group for the ninth consecutive month. The freight station forces in Oklahoma City handled an average of 3,808 shipments between errors, a record of which no station force need be ashamed.

Col. Jonah Honored

Col. Frank G. Jonah, chief engineer of the St. Louis-San Francisco, has been awarded the Order of the Purple Heart for military merit in the World War. Col. Jonah served overseas with the First Battalion, Twelfth Engineers (Railway), a group of volunteers recruited in St. Louis, Mo. He held the rank of Major. Later he served at the American General Headquarters as chief engineer of the department of light railroads. When the First Battalion landed in France, it was stationed with the British forces in 1917 along the Picardy front. Much of their work was done under fire from heavy German guns, but the outfit built and maintained the light railways needed in the advance sector. This is not the first time that Col. Jonah's services have been officially recognized. He was cited by General Pershing, commander-in-chief of the American expeditionary forces, at the close of the war, and he was awarded a medal by the government of Poland.

The Order of the Purple Heart was founded by George Washington as a reward for soldiers who distinguished themselves in the war for independence. Following Washington's death, no further awards were made until recently, when President Hoover revived the order as a tribute to the Father of His Country.

Quite a Wait Between Trains

What is the world's most infrequently operated train? The "annual train" of the Stratford-on-Avon & Midland Junction Railway in England used to be ranked No. 1 in this respect, but now there is a new contender. It is the "Eclipse Special," the first trip of which was scheduled by the Boston & Maine on August 31, and which conveyed vast throngs of passengers from Boston and nearby points to "ringside seats" at the total eclipse of the sun. Since the next "Eclipse Special" is not due to leave until the year 2017, this 85-year wait between trains must set a new record—one which we trust the railway which carries us back and forth from our suburb will not attempt to rival.

Cannon Train

There aren't very many trainloads heavier than the one hauled recently by the Chesapeake & Ohio from Lee Hall, Va., to Columbus, Ohio, enroute to Weirton, W. Va. In the train were 17 giant coast artillery guns, each weighing 404,000 lb. This solid cannon train was one of the largest single movements ever made over the Chesapeake & Ohio. The length of each gun and its undercarriage is about equal to that of three ordinary freight cars. The guns are mounted on their own wheels and are readily movable over railroad lines. Collected from eastern seaboard fortresses, the guns, which had been discarded by the government, were sold to the Weirton Steel Mills at Weirton.

Relief for Sneezers

You never know how much good new inventions are going to do. Frequently, they develop unthought-of benefits. For example, air-conditioned equipment was originally applied to railroad passenger cars solely with the idea of making train travel more attractive by enabling passengers to keep cool and clean when enroute. But that, it seems, is not all that air-conditioned equipment will do. An essential part of air-conditioning equipment is the filter which removes dirt and dust from the outside air as it is taken into the car. What is more, this filter also removes pollen, one cause of hay fever which sets millions of sufferers to sneezing at this time of the year. In other words, air-conditioned cars offer immediate relief to sufferers from hay fever. One railroad, which employs several waiters who are hay fever victims, reports that these men were greatly relieved when assigned to air-conditioned dining cars. We suggest as a slogan for railroads operating air-conditioned cars the following: "Travel by Train and Save Time and Handkerchiefs."

The Hoboken Ferry

Believe it or not, the Hoboken Ferry of the Delaware, Lackawanna & Western is older than the United States. It first went into action in the service of the traveling public on May 1, 1775, over a year before the Declaration of Independence was signed. At that time, it churned its way across the Hudson river between Bear Market, located at the foot of Vesey street, in New York and a stopping place on the New Jersey shore where Hoboken now is. This Jersey terminus was sometimes called Hoebuck and at other times Hoboock. At that time, New York boasted a population of about 22,000, all of whom—just as New Yorkers do now—probably considered everything west of the Hudson as being well beyond the outermost rim of civilization.

The early day ferries were powered by sails, or horses working on treadmills, but these were displaced in 1811 when the first steam ferry boat in the world was operated on the Hoboken route. The Hoboken Ferry became a part of the Marine department of the Lackawanna in 1903. This service now comprises the largest fleet of ferry boats in New York harbor. Operating day and night, the Lackawanna Hoboken ferry boats cross the Hudson 800 times every 24 hrs. They run on four routes, between Barclay street, Christopher street and West Twenty-Third street, New York, and the Lackawanna terminal at Hoboken, and between West Twenty-Third street in New York, and Fourteenth street in Hoboken, accommodating both pedestrian and vehicular traffic.

NEWS

N. Y. Delivery Tariff Effective October 15

Store-door services of railroads now planned for l.c.l. as well as carload shipments

Extension of optional collection and delivery services in New York to l.c.l. as well as carload freight is now contemplated by the railroads serving that city, according to the single agency tariff filed on behalf of all participating carriers on September 15 to cover the new store-door plan which will be installed on October 15. The original plan and schedule of rates, made public by the carriers on July 11, contemplated the handling of carload freight only, although the announcement included a statement to the effect that "the matter of effecting corresponding arrangements for the collection and delivery of l.c.l. shipments is under active investigation with a view to making such arrangements effective at the earliest possible date."

The latest announcement in connection with the plan, issued on September 13 by D. T. Lawrence, chairman of the Trunk Line Association, follows:

"The matter of store-door collection and delivery at points in Manhattan, Bronx, Brooklyn and Queens and in New Jersey suburban territory ordinarily taking New York rates in connection with traffic to and from points beyond a distance of 100 miles, was further considered today by the traffic and operating vice-presidents of New York lines. It was concluded that tariff would be issued on September 15, and filed with the Interstate Commerce Commission to become effective on statutory notice, providing for these arrangements on both carload and less carload traffic.

"The new tariff will provide a schedule of basic charges to apply in addition to the freight charges, for handling to and from shippers' premises located within a distance not exceeding two miles from designated stations of the carriers, together with additional charges to apply on carload shipments for hauls in excess of two miles.

"The proposed arrangements contemplate that the truckman making delivery or accepting the freight shall act as the authorized agent of the rail carrier, the regulations governing the collection and delivery service being defined in the tariff in question which will be issued as a joint agency tariff for all of the New York rail lines."

Rates published in the tariff include some modifications of the proposed schedule issued in connection with the July 11 announcement; also, a schedule of trucking rates for the handling of l.c.l. shipments is now published. Rates for the handling of carload shipments will range upward from six cents per 100 lb., the charge applicable on commodities with carload minima of 36,000 lb. and over. Rates on l.c.l. shipments will range upward from the 10 cents per 100 lb. which will apply on commodities rated first class and under; the minimum charge for handling an individual l.c.l. shipment will be $1.

Trucking arrangements for the service will be made by the individual participating carriers.

Meanwhile, on September 12, the United States Circuit Court of Appeals at Philadelphia, Pa., denied the request of four Brooklyn, N. Y., contract terminals for an injunction to restrain the Pennsylvania from installing the New York service.

A Coroner Gets Mad

Coroner Schwarz of Philadelphia is all set to manhandle the auto truck that "hogs" the road. He adjourned a hearing recently to determine to what extent the truck driver was responsible for crashing into a car killing some of its occupants.

His ire is aroused against motor truck drivers who "use the superior weight of their vehicles to frighten other motorists and run them off the road." That characterization will be accepted by many motorists. They might have difficulty in proving it, but more than one motorist is convinced that some truck drivers do the very thing the Philadelphia coroner charges.

But even if they did not, the awesome size of these vehicles have the same effect on a great many drivers. It takes a brace of good nerves to approach a towering, swaying truck, big as a railroad box car, traveling at high speed and pass it in safety, especially where highways are a trifle narrow.

—*From the Harrisburg (Pa.) Patriot*

Pennsylvania Commission

The Governor of Pennsylvania has named P. S. Stahlnecker and Clyde L. King as members of the Public Service Commission, to fill vacancies.

Manufacturers Form Finance Corporation

New credit agency will help railroads to buy equipment with R. F. C. loans

Manufacturers of railway equipment and supplies have completed the organization of the Railway Equipment Financing Corporation, a credit agency designed to help the railroads to buy equipment at this time through loans from the Reconstruction Finance Corporation. William H. Woodin, president of the American Car & Foundry Company, has been elected chairman of the board of the Railway Equipment Financing Corporation and George H. Houston, president of the Baldwin Locomotive Works, has been elected chairman of the executive committee. Other officers are: President, Harry A. Wheeler, president of the Railway Business Association; executive vice-president, Harrison Hoblitzelle, president of the General Steel Castings Corporation; and secretary and treasurer, George L. Alston.

In addition to Messrs. Woodin, Houston and Hoblitzelle, who are representatives of their respective companies on the R.E.F.C. board of directors, the new corporation's directorate includes Mr. Wheeler and Robert P. Lamont, former Secretary of Commerce and now president of the American Iron & Steel Institute and the following representatives of other participating companies: Samuel G. Allen, president, Lima Locomotive Works, Inc.; George P. Baldwin, vice-president, General Electric Company; William C. Dickerman, president, American Locomotive Company; Myles B. Lambert, transportation sales manager, Westinghouse Electric & Manufacturing Company; C. A. Liddle, president, Pullman Car & Manufacturing Corporation; J. F. MacEnulty, vice-president, Pressed Steel Car Company; R. E. McMath, vice-president, Bethlehem Steel Corporation; George E. Scott, president, American Steel Foundries; Lester N. Selig, president, General American Tank Car Corporation.

The financing plan of the Railway Equipment Financing Corporation was outlined by Mr. Houston in a statement before the National Conference of Business and Industrial Committees held at Washington, D. C., on August 26 and 27 at the call of President Hoover. In this statement, which was published in the *Railway Age* of September 10, page 359, Mr. Houston described the plan as one which permits of 80 per cent of the

purchase price being borrowed from the Reconstruction Finance Corporation upon trust certificates constituted in strict accordance with the banking laws of the state of New York. It provides further that the equipment company shall take in part payment for the equipment, junior equipment trust certificates which they in turn will deposit with the Railway Equipment Financing Corporation which will pledge these junior certificates as additional collateral to secure repayment by the railroads of their loans from the Reconstruction Finance Corporation.

The Railway Equipment Financing Corporation will maintain a business office at Eddystone, Pa.

Hunt for Rail "Czar" Continued

The committee, composed of five railroad presidents delegated to find a commissioner for all lines west of Chicago, adjourned on September 9 after a three-day meeting, subject to call by the chairman, Carl Gray, president of the Union Pacific, without selecting a commissioner. No date for the next meeting has been set.

New Salary Reduction for B. & M. Officers

Executives of the Boston & Maine have made a voluntary reduction of an additional 10 per cent in their salaries, effective September 1. This, with a similar voluntary reduction which was effective January 1, constitutes a 20 per cent reduction in salaries of Boston & Maine executives this year.

I.C.C. To Hear Arguments on Power Reverse Gear

The Interstate Commerce Commission has assigned the case in which the brotherhoods of locomotive enginemen and firemen are asking the commission to require the railroads to equip their locomotives with power reverse gear for oral argument before Division 6 at Washington on October 6.

Southeast Shippers' Board

The Southeast Shippers' Advisory Board will hold its regular meeting at Hotel Ansley, Atlanta, Ga., on Thursday, September 22. The announcement, from E. D. Wood, chairman, gives a program showing reports to be expected from all of the commodity committees, and an address by Colonel W. H. Noble, Q.M.C., U.S.A., on rail transportation as related to war department activities.

Pine Association Adopts Economic Program

The Western Pine Association has recently adopted a comprehensive economic program for the industry it represents. Among its recommendations are the following:

A reduction in freight rates, to be made possible by greater net income for the railways which in turn is to be secured by the removal of the government as a competitor, direct or indirect; regulation of railway competitors; repeal of laws placing unreasonable economic burdens on the railways; reduction of the railway tax burden by government economy and by an equitable shifting of taxation, especially to railway competitors.

General tax reform to distribute the burden equitably, especially to relieve real estate by transferring the burden largely to other forms of taxation.

David T. Mason, Yeon building, Portland, Ore., is manager of the association.

Cotton Rates Suspended

The Interstate Commerce Commission has suspended until April 10, 1933, the operation of schedules published in a supplement to Agent F. L. Speiden's freight tariff, I.C.C. No. 1477, proposing to establish reduced rates on cotton from east side Mississippi Valley points to New Orleans, and other gulf ports east thereof, on basis of export rates made 5 cents per 100 lb. differential over domestic rates. The present differential is 2 cents.

Railway Security Issues—Eight Months

In the first eight months of this year the Interstate Commerce Commission has approved issues of securities by railroads or assumptions of liability amounting to $934,532,383, as compared with $562,883,821 in the corresponding period of last year. The total includes $876,041,111 of bonds, a large proportion of which were nominally issued for collateral purposes in connection with loans from the government or other sources.

Tourist Sleeper Excursion to Rochester, Minn.

An excursion, wherein a fare of $10 covered rail transportation and tourist sleeping car accommodations for a round trip totaling 340 miles, was operated from Chicago to Rochester, Minn., by the Chicago & North Western, on September 14 and 17. The excursion was so arranged that persons desiring to visit the clinic at Rochester could leave on Wednesday and return on Saturday, while those who wished to spend only a day in Rochester could leave on Saturday night and return on Sunday.

Funds Allotted For Rivers and Harbors

Allotments of $26,077,260 for river and harbor improvements from the funds provided for in the emergency relief and construction act were approved by F. H. Payne, Assistant Secretary of War, on September 13, in addition to $15,500,000 for flood control and similar work. The allotments include $2,000,000 for the Mississippi river between the Ohio and Illinois rivers, $3,200,000 for the Mississippi between the Illinois river and Minneapolis, and $5,000,000 for the Missouri river between Kansas City and Sioux City.

Denied Right to Reduce Yard Crews

The Iowa Transfer Railway Company, Des Moines, Iowa, was denied the right to reduce the size of yard switching crews in a decision handed down by a board of arbitration on September 7. The transfer company, owning trackage between East Ninth and East Sixteenth streets, had asked the Switchmen's Union of North America to approve a reduction from a foreman and two helpers to a foreman and one helper in yard crews. The board, however, did reduce the period of notice from 48 hrs. to 24 hrs. when a change is made in the starting time of a regularly assigned yard crew.

Pennsylvania Improves New York Freight Service

The Pennsylvania has inaugurated a van type semi-trailer service designed to expedite the receipt or delivery of carload freight to and from Greater New York. The railroad will furnish the trailers for both inbound and outbound movement. The transfer to or from cars will be performed in the Jersey City yards.

The railroad will carry the freight to and from cars at a moderate charge which is expected to result in a reduction of congestion and delay and to minimize damage to goods. Shippers are offered a co-ordinated and responsible collection and delivery service.

Rule to Elect Moffat Tunnel Commissioners

A rule, whereby candidates for positions on the Board of Moffat Tunnel Commissioners be elected by obtaining signatures of 100 qualified voters, was adopted by the board on September 10. The signatures are to be on a form given out by the commissioners and three members are to be elected from the district on the east and two on the west side of the tunnel. Only taxpaying voters of the tunnel district are eligible to sign. For some time past the commissioners have been appointed by the governor, but the last legislature passed a law making the selection elective by the taxpayers.

Southwest Board Meeting

The Southwest Shippers' Advisory Board will hold its thirty-first regular meeting at little Rock, Ark., on September 22, at which time consideration will be given to the movement of the cotton crop which is about to begin. L. W. Baldwin, president of the Missouri Pacific, will speak on the railroad situation, while John W. Daniel of Dixie Shippers, Inc., and chairman of the Motor Transport committee, will present a paper on rail and highway transportation. Dudley V. Haddock, secretary of the Arkansas Industries Association, will deliver an address on "A Cure for Public Extravagance and High Taxes." Meetings of the Executive and Contact committees of the board will be held on September 21.

Reduced Coal Rates Suspended

The Interstate Commerce Commission on September 8 suspended until April 9, 1933, a tariff filed by the Pittsburgh & West Virginia to become effective on September 9 making reductions in the freight rates on bituminous coal from mines in the Pittsburgh district to Cleveland, Lorain, and Huron, which had been the subject of a conference before the commission's board of suspension on August 26 after protests had been made

by other coal-carrying roads. The Pittsburgh & West Virginia contended that its reduction had been made necessary by an earlier reduction made by the Wheeling & Lake Erie to preserve a relationship disturbed by a reduction in Ohio intrastate rates ordered by the Ohio public utilities commission.

Austrian Railroad Head to Study U. S. Lines

Dr. Egon Seefehlner, general manager, Austrian Federal Railways, arrived from Vienna on September 13, for an inspection tour of American railroad systems. Dr. Seefehlner is especially interested in the progress of electrification and will spend most of his time consulting with railway executives and inspecting shops, roads and equipment of lines on which steam has largely been replaced by electric motive power. He expects to utilize his American experience in the operation of the Austrian State Railways, a large part of which have been electrified under his supervision. Additional electrification is scheduled for other lines of the system.

Approval of Tolerance Rule Recommended

Approval by the Interstate Commerce Commission of a tolerance rule proposed by the railroads for uniform application throughout the United States, which has been suspended since January 1, 1932, is recommended by Examiner Burton Fuller in a proposed report, following hearings on protests filed mainly by coal dealers. Tolerance is defined as the difference in weights due to variation in scales or weighing which may be permitted without correction of the bill of lading. The proposed rule, for application on all carload traffic except grain, seeds, hay, straw, and screenings, provides that the tolerance shall be 1 per cent of the lading with a minimum of 500 pounds on all carload freight, except that as to such commodities as ashes, coal, coke, cinders, clay, ore, sand, slag loaded in open cars, as to which it shall be 1½ per cent.

Wage Statistics

Class I railways reported to the Interstate Commerce Commission a total of 1,047,483 employees as of the middle of June. The total compensation was $125,611,783. Compared with returns for the corresponding month of last year the summary for June shows a decrease in the number of employees of 269,916, or 20.49 per cent. The total compensation shows a decrease of $57,213,530, or 31.29 per cent. This record shows 34,113 persons less than the number reported for May. Each group shared in the decrease.

A further reduction of 25,546 in the number of railway employees in the service of Class I railways took place between the middle of June and the middle of July, according to the Interstate Commerce Commission's monthly statistics of railway employment, reducing the total to 1,021,937. This was a decrease of 21.98 per cent as compared with the number on the same date last year. The group of maintenance of way and structures employees showed a reduction of 26.28 per cent.

U. S. Chamber Reports Calls for Curb on I.C.C.

The curbing of the powers of the Interstate Commerce Commission and the granting of more freedom for the carriers are aims of a special committee of the Chamber of Commerce of the United States, which, on September 12 at a meeting in Chicago, ended a series of three conferences to formulate recommendations on the plight of the railways. The committee is composed of 10 bankers and shippers and two railroad presidents. Its recommendations are expected to be accepted at the annual meeting of the board of directors of the chamber in Washington on September 23 and 24.

The committee issued a statement calling for new transportation policies. It is believed that much of the present credit difficulties of the railroads are due to excessively rigid policies of regulation; both as to rates, earnings and financial policies and in the details of equipment and operation.

Repeal of the recapture clause of the transportation act will be asked by the committee, on the ground that monopolistic tendencies which may have justified this law in the past no longer exist.

Seatrain Lines Launch First Ship for New York-Havana Service

The "Seatrain New York," the first of two steamers being built by the Sun Shipbuilding & Dry Dock Company, Chester, Pa., for the New York-Havana service of Seatrain Lines, Inc., was launched at the Sun yards at Chester on Wednesday, September 14. The new vessel is to be tested and delivered before the end of this month, and is scheduled to make its first sailing from New York on October 6. Designed to carry 100 loaded freight cars at a speed of 16½ knots (about 19 m.p.h.), the "Seatrain New York" has a length of 478 ft., a beam of 63 ft. 6 in., and a loaded draft of 22 ft., and was built at a cost of approximately $1,580,000. With its sister ship, the "Seatrain Havana," which will be launched by the Sun Company on September 24 and delivered shortly thereafter, and the "Seatrain New Orleans," which has been in service for some time between New Orleans, La., and Havana, Cuba, the new steamer will be used by Seatrain Lines, Inc., in maintaining a regular car-ferry service between the two United States ports and Cuba.

Port Representatives Oppose St. Lawrence Treaty

Resolutions expressing unanimous opposition to the ratification of the St. Lawrence waterway treaty were adopted at a conference of representatives of associations representing the interests of the port cities of Boston, New York, Philadelphia, Baltimore, and Norfolk-Portsmouth held at Baltimore on September 8. The resolutions are in the form of recommendations to the governing boards of the associations. The conference was held as a preliminary foundation for eventual co-operation among the several North Atlantic ports and the representatives present expressed their opposition to the treaty as "leading to an uneconomic expenditure of vast proportions, the feasibility and practicability of which are unproved and which would place a burden of debt and taxation upon the American people not justified at this time by any possible benefits accruing."

The port representatives were: G. W. Edmonds, manager, Philadelphia Ocean Traffic Bureau; J. P. Magill, special representative, New York Maritime Exchange; F. S. Davis, manager, Maritime Association, Boston Chamber of Commerce; H. J. Wagner, traffic manager, Norfolk-Portsmouth Freight Traffic Commission; and G. H. Pouder, director, export and import bureau, Baltimore Association of Commerce.

The opinion also was expressed that the mid-western interests should give further study to the proposal with reference to the cost to be incurred by cities on the Great Lakes to meet the requirements of such a route, and to the question whether ocean vessels could profitably use the long and tortuous route of the proposed waterway.

School Coal Should Be Carried by Rail

Railroads with general offices in St. Louis, Mo., have filed a formal protest with the St. Louis Board of Education against the board ordering virtually all of its coal for next winter carried by motor truck instead of by railroad. The 16 railroads joining in the protest pointed out that they paid a large share of the taxes which support the public schools and that normally the railroads disburse in St. Louis through payrolls approximately $55,000,000 annually to their 34,000 employees. In addition, a large number of other wage earners in the St. Louis area are employed directly in the manufacture or sale of material and supplies for railroad use.

The Board of Education estimates that it will save $12,485 by purchasing coal carried by truck. The railroads joining the protest were the Missouri Pacific, the St. Louis-San Francisco, the Wabash, the Missouri-Kansas-Texas, the St. Louis Southwestern, the Pennsylvania, the Terminal Railroad Association, the Louisville & Nashville, the Alton, the Manufacturers', the Chicago, Burlington & Quincy, the Illinois Central, the Chicago, Rock Island & Pacific, the Southern, the New York Central and the Chicago & Eastern Illinois.

Employees Alert in Louisiana

Railway employees in Louisiana were represented in the recent hearings at New Orleans of the Shannon Congressional committee which is investigating government competition with private industry by E. J. Foster, vice-chairman of the Railroad Workers of Louisiana, 2482 Verbena street, New Orleans.

Mr. Foster, who is cashier for the Texas Pacific—Missouri Pacific Terminal, cited the great declines in railroad employment due to the development of water transport, bringing about "the transfer of certain elements of transportation cost

Continued on next left-hand page

OBSOLESCENCE
is cutting into the railroad dollar

RAILROADS are manufacturers. Their product is ton miles—their production machines are locomotives.

Present tools or equipment may be physically as good as new; they may have been well maintained, but if the progress of the art has made available more productive and more economical machinery, the older equipment is obsolete.

A very high percentage of locomotives are obsolete and will pile up losses from excess cost of operation as long as they are kept in service.

LIMA LOCOMOTIVE WORKS INCORPORATED

LIMA LOCOMOTIVE WORKS • Incorporated • LIMA • OHIO

from the shipper to the taxpayer." His organization, he asserted, does not object to the development of water transportation, "provided such agencies are put on the same basis as the railroads." He contrasted the accounting methods of the Federal Barge Line with those of private corporations, denounced the "unethical provisions of the Denison act" and discriminatory practices of the Barge Line. Citing the hardships of railroad employees, he quoted figures illustrating the heavy inroads the subsidized waterway competitors are making in tax-yielding railroad traffic.

The officers of the Railroad Workers of Louisiana, in addition to Vice-Chairman Foster, are: Chairman, J. C. Porteous (engineman); secretary, J. E. Barrow (car department); and, press secretary, J. W. Ford (clerk). The organization was formed September, 1930, and holds monthly meetings at which holders of or aspirants to elective office are invited as speakers. Last May a mass meeting was held where the principal speakers were outstanding leaders in political and business circles in New Orleans, and the attendance totaled 4,500.

The association has been of material assistance in securing additional legislation dealing with motor transport during the current year and now is seeking similar action to protect the jobs of its members from the encroachment of subsidized inland waterway competition.

Opposes Equipment Repair Loans

J. P. Shatford, chairman of the Railroad Owners Association, Washington, D. C., in a recent letter to members urged the latter to protest against the borrowing of R.F.C. funds by railroads for the repair of idle equipment not needed under present traffic conditions. The letter, which also discusses wages of railway employees, follows:

> Your wages—dividends—except in a few instances, have been entirely eliminated, yet the wages of employees have been reduced only 10 per cent. Now we find it suggested that railroads should borrow from the Reconstruction Finance Corporation to repair unneeded cars, locomotives, etc., and this in the face of the fact that about 750,000 of these are idle and without any demand for their use. Even if money could be obtained free of interest charge it would be extravagance, for depreciation would occur while not in use and much of the equipment, before it is necessary, might become obsolete. You are asking us, in many instances, to prevent such expenditures. We have done what we can. It is up to you to speak to the managements of your companies, giving them your views. Remember, you are without wages and no one seems to sympathize with you.
>
> The proper way to bring conditions back to normal is to reduce wages of all employees fully 15 per cent more. This would permit a profit to the companies, this profit could be spent in necessary rehabilitation, putting to work tens of thousands of men, and in kindred institutions furnishing railroad supplies ten of thousands more. It is better to put many to work at fair wages than a few at extravagant rates. By this means—sound economic principles—a turn for the better would be made. To borrow money for repair of idle equipment not needed would, we believe, be waste, and destructive of the stockholder's equity. Let your voice be heard.

Secures Pledges on Legislative Support

Supplementing the efforts of associations of railway employees to secure the support of legislators for bills which will remove inequalities in the competition with motor carriers and barge lines, Mrs. W. A. Marti, Kansas state legislative representative of the Ladies' Auxiliary to the Brotherhood of Railroad Trainmen, has instituted a campaign for favorable legislative pledges in her state which is also being taken up by members of the B. R. T. Ladies Auxiliary in other states. To all candidates for state and national office in Kansas, she has presented a request for a specific statement of their position on railway questions. The following letter was sent to candidates for Congress:

"In the event of your election, what would be your position on the question of Interstate Commerce Commission control of all interstate transportation, including passenger and merchandise carriers? By this we mean trucks, buses, airways, waterways and pipe lines in addition to railroads. We feel that the railroads are operating against unfair competition.

"We have a large membership in Kansas which includes mothers, step-mothers, wives, widows, sisters, daughters, legally adopted daughters or step-daughters, grand-daughters and nieces of members of the Brotherhood of Railroad Trainmen, and we are very anxious to get your answer before them."

The inquiries have brought a favorable response. Typical of the letters received by Mrs. Marti is one received by a candidate for re-election to the Senate of Kansas, which reads as follows:

"In the event of my election, I pledge myself to support and vote for any bill that will guarantee fair competition to railroads. I believe in fair competition for railroads."

Twenty Per Cent Pay Cut Recommended

A reduction of 20 per cent in all basic rates of pay, effective upon the termination of the present wage reduction of 10 per cent, was decided upon by a committee of railway officers of which W. F. Thiehoff, general manager of the Chicago, Burlington & Quincy, is chairman, at a meeting in Chicago on September 7, 8 and 9. This committee decided to recommend to the individual roads that they serve notices on all classes of their employees of their intention to place the reduction in effect on February 1. While the proposed decrease is 20 per cent, it actually means a reduction of only 10 per cent more than the scale now in effect which was adopted last January, following a three-weeks conference in Chicago between a committee of railroad presidents and the presidents of the 21 labor organizations. Based on the payroll for June, the 10 per cent additional reduction will amount to about $151,000,000 a year.

The present action is the result of several meetings of eastern, western and southeastern roads, the first of which took place on August 30 when the Eastern Presidents' Conference appointed a committee to co-operate with committees of the western and southeastern regions regarding the action to be taken upon the expiration of the present agreement.

The membership of the committee is as follows:

Eastern Roads

J. G. Walber, vice-president, personnel, New York Central
C. W. Galloway, vice-president, Baltimore & Ohio
H. A. Enochs, acting director of personnel, Pennsylvania

Western Roads

W. M. Jeffers, executive vice-president, Union Pacific
J. T. Gillick, vice-president, Chicago, Milwaukee, St. Paul & Pacific
W. F. Thiehoff, general manager, Chicago, Burlington & Quincy (chairman)

Southeastern Roads

P. R. Albright, vice-president, Atlantic Coast Line
W. J. Jenks, vice-president, Norfolk & Western
C. D. Mackay, assistant to vice-president, Southern

A meeting of the officers of the 21 standard railroad unions probably will be held in Chicago in a few weeks to agree upon a course of action relative to the reduction. It is not believed, however, that the unions will agree to a joint meeting of representatives of all Class I railroads and union officers such as was held at Chicago in January. The first move following the filing of notices probably will be a meeting of the union representatives and the managements of the individual lines to discuss the reduction. If the proposal is rejected by the men, the matter will then be handled in accordance with the Labor Act.

Ben E. Chapin, Editor of The Railroad Employee, Dies

Ben E. Chapin, editor and publisher of The Railroad Employee since its establishment by him 41 years ago, died of a cerebral hemorrhage on Sunday, September 11, at the home of Frank Cizek, superintendent of the Syracuse and Utica division of the Delaware, Lackawanna & Western, Binghamton, N. Y., where Mr. Chapin had been a guest following his attendance at a meeting of the Delaware & Hudson veterans' organization at Oneonta, N. Y., on the preceding day.

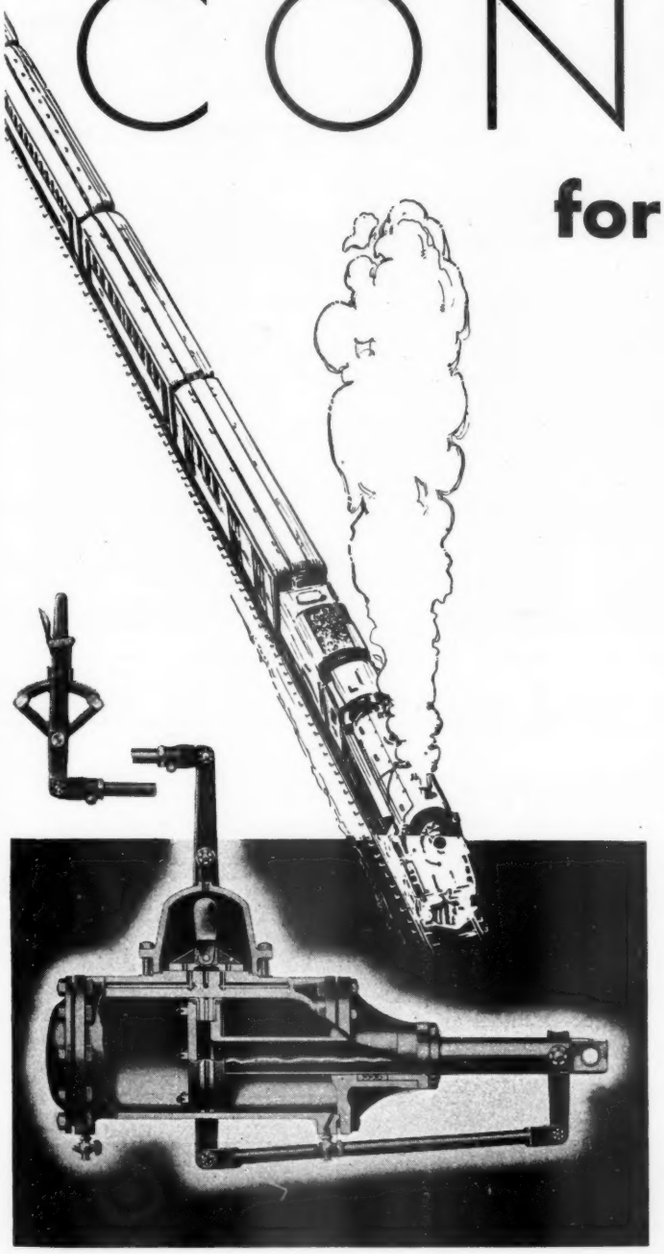
Born in Great Barrington, Mass., on March 12, 1867, and educated in the public schools, Mr. Chapin first entered railroad service at the age of 15 as a messenger in the Great Barrington station of the Housatonic (now part of the New York, New Haven & Hartford). Two years later he became a timekeeper in the Kingsland, N. J., repair shops of the Lackawanna, subsequently being transferred to Hoboken, N. J., where he served for many years as confidential secretary to Division Superintendent Andrew Reasoner. Meantime, in 1891, Mr. Chapin had begun to publish the magazine to which he was to devote the remainder of his life and in connection with which he was to become best known, and by 1899 this had grown to a point where he felt it necessary to resign from active railroad work in order to give his entire attention to editorial duties.

Largely through his personal influence, Mr. Chapin had succeeded during the past 40 years in building up The Railroad Employee to a point where, as the official organ of many veteran employees' associations in New England and the northeastern states, it exerted a decided influence in railroad employee circles. Consistently conservative in its editorial policies and always loyal to the best interests of railroad workers the paper had also come out strongly in recent years as

Continued on next left-hand page

MODERN CONTROL

for modern power



Modern Locomotives, with their tremendous power, long ago outgrew hand control.

Franklin Type "E" Power Reverse Gear is the modern method.

Proved by performance on thousands of locomotives, the Franklin Type "E" Power Reverse Gear gives accurate cut-off control at low cost.

Quick-acting, with a minimum of physical labor, the Franklin Type "E" Power Reverse Gear makes it easy to obtain and keep the desired cut-off.

A small number of wearing parts and unique features of design keep maintenance at a minimum, resulting in a low yearly cost for this gear. Due to the absence of cross-head, the gear is also lighter in weight.

DESIGN ADVANTAGES

1. Crossheads and guides eliminated.
2. Self-adjusting piston rod packing.
3. Balanced slide valve familiar to all air repair men.
4. Automatic indication of piston packing cup condition, avoiding disassembly of gear to check the packing.

FRANKLIN RAILWAY SUPPLY CO., INC.

NEW YORK CHICAGO MONTREAL

a champion of equality of governmental treatment for railroads and in favor of fair regulation of their subsidized and unregulated competitors.

In addition to his editorial work, Mr. Chapin was active in politics, taking charge of the railroad labor bureau of the

Ben E. Chapin

Republican National Committee in the campaigns of 1908, 1912 and 1916; while as head of the New Jersey organization of Four Minute Men during the war he organized and directed a speaking campaign which effectively aided dissemination of patriotic information. He was also a member of many fraternal, business and railroad organizations.

P. & S. Appoints Committees

Subjects for the committee work of the Purchases and Stores division, American Railway Association, and the personnel of all committees, have been selected and committees assigned to commence the preparation of their reports for the next annual convention, according to an announcement of W. J. Farrell, secretary. New committees on "New Ideas and Economies," "Purchase of Special Devices and Commodity Purchases" and "Material Guarantees" have been created and new chairmen assigned to several standing committees. The committees and chairmen appointed are as follows:

Purchasing and Stores Department Manual—Recommended Rules and Practices: H. R. Toohey, inspector of stores, C. M. St. P. & P.—chairman.

Classification of Material: D. H. Reed, traveling storekeeper, Southern—chair man.

Recovery, Repair and Reclamation of Discarded Material—Classification Handling and Sale of Scrap: J. J. Collins, foreman, scrap and reclamation plant, Erie—chairman.

Comparisons of Material Stock Reports and Stores Expenses: O. A. Donagan, general storekeeper, B. & M.—chairman.

Forest Products: C. C. Warne, purchasing agent, N. Y. C.—chairman.

Purchasing and Storekeeping for Highway Motor Vehicles: R. C. Harris, general storekeeper, Penna.—chairman.

Control of Shop Manufacturing Orders for Stock Material: G. J. Hunter, traveling material supervisor, Santa Fe—chairman.

Control of Material Stocks and Co-ordinating Procurement with Actual Needs: J. V. Miller, assistant general storekeeper, C. M. St. P. & P.—chairman.

Pricing and Inventory: U. K. Hall, general storekeeper, U. P.—chairman.

Purchasing Agent's Organization, Practices and Office Records: C. R. Painter, purchasing agent, N. Y. N. H. & H.—chairman.

Stationery and Printing: J. T. VanHorn, stationer, M. P.—chairman.

Economical Handling of Materials — Protection from Deterioration: J. G. Stuart, assistant purchasing agent, C. B. & Q.—chairman.

Standardization and Simplification of Stores Stocks: J. L. Sullivan, division storekeeper, U. P.—chairman.

Terminal Railway Storekeeping: C. W. Yeamans, purchasing and supply agent, C. & W. I.—chairman.

Capacity Loading and Prompt Handling of Company Material Cars: J. S. Genther, general storekeeper, L. & N. E.—chairman.

Joint Committee on Metric System: J. W. Gerber, general storekeeper, Sou.—chairman.

Purchasing, Storage and Distribution of Equipment and Supplies Used in Dining Cars, Hotels and Commissaries: A. J. Amory, assistant purchasing agent, C. N. —chairman.

New Ideas and Economies: A. N. Laret, assistant to vice-president, 'Frisco —chairman.

Purchase of Special Devices and Commodity Purchases: P. L. Grammer, assistant purchasing agent, Penna.—chairman.

Exchange of Surplus Material: A. W. Munster, purchasing agent, B. & M.—chairman.

Inspection of Materials: J. J. Bennett, purchasing agent, I. C.—chairman.

Material Guarantees—General Practice as to Guarantees—Failures—Methods of Handling: M. E. Towner, general purchasing agent, W. Md.—chairman.

Joint Committee on Reclamation: I. C. Bon, superintendent of reclamation, Wabash—chairman.

Subjects: C. E. Walsh, purchasing agent, Penna.—chairman.

Annual Contest: J. C. Kirk, assistant general storekeeper, C. R. I. & P.—chairman.

Committees: A. L. Sorensen, manager of stores, Erie—chairman.

Nominating: W. Davidson, general storekeeper, I. C.—chairman.

Associated Traffic Clubs Convention

The Associated Traffic Clubs of America will hold their eleventh annual convention at the Brown Hotel, Louisville, Ky., on October 19 and 20, with a meeting of the board of directors the previous day. During the same week the Ohio Valley Shippers' Advisory Board, the American Association of Freight Traffic Officers and the American Association of Past Presidents, Traffic and Transportation Clubs will meet in Louisville. The program for the Associated Traffic Clubs convention includes the following:

October 19, Morning Session

Opening exercises

Address by M. H. Hunter, professor public finance, University of Illinois, on "Recent Developments in State Regulation and Taxation of Highway Transport"

Address by M. J. Gormley, executive vice-president, American Railway Association, on "A Summary and Criticism of the Various Programs of Public Policy Relative to Highway Transport Advanced by Various Interested Groups"

Afternoon Session

Report of Committees on Education and Research, Membership, Speakers and Finance.

Address by H. W. Sidall, chairman of the Western Passenger Association and the Transcontinental Passenger Association, on "Railroad Policy Relative to Passenger Service and Rates"

Address by J. E. Tilford, chairman of the Southern Freight Association, on "Changes in the Railroad Freight Rate Structures Under the Impetus of Present-Day Competition"

Banquet

Address by Horatio L. Whitridge, Baltimore, Md., on "The Future of Railway Transportation in the United States"

Address by E. A. Jack, general traffic manager, Aluminum Company of America, on "Some Desirable Changes in the Policy of Regulating Railroads in the United States"

October 20, Morning Session

Election of officers.

Discussion of individual traffic club problems and activities

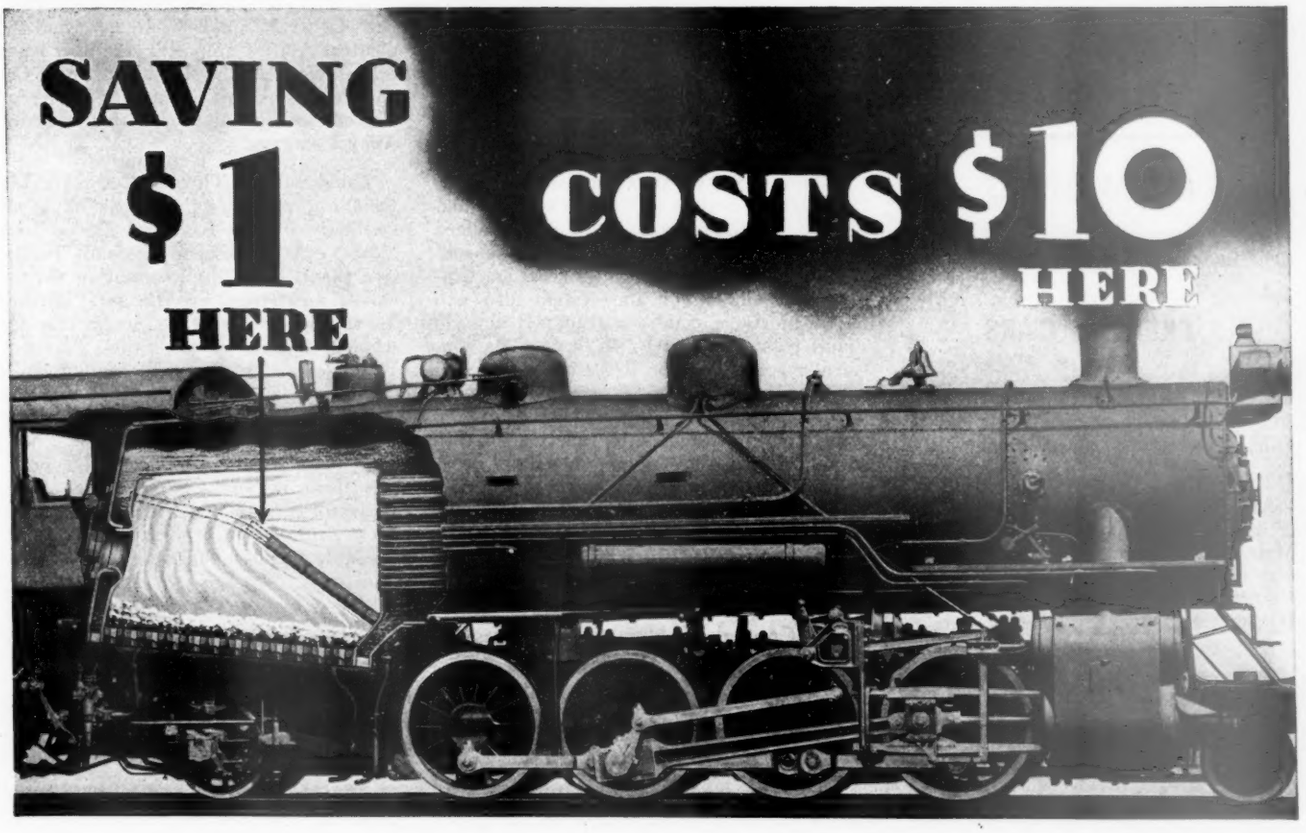
Afternoon Session

Inspection tour of the plant of the American Tobacco Company

* * * *

A Bird's-Eye View of the Chesapeake & Ohio's Locomotive Repair Shops at Huntington, W. Va.

Continued on next left-hand page



• in the battle for economy you need a complete arch

A partial Arch gives only partial economy. For the full fuel-saving effect of the Arch you need every course of brick in place.

Cutting off a course of Arch brick in an effort to reduce expenses will ordinarily waste ten dollars in fuel for each dollar saved in Arch brick—net loss nine dollars.

True economy lies in making the money-savers like the locomotive Arch work at their maximum efficiency.

THERE'S MORE TO SECURITY ARCHES THAN JUST BRICK

HARBISON-WALKER REFRACTORIES CO.
Refractory Specialists

AMERICAN ARCH CO.
INCORPORATED
Locomotive Combustion Specialists » » »

Equipment and Supplies

LOCOMOTIVES

THE CENTRAL OF NEW JERSEY.—See item under Miscellaneous.

FREIGHT CARS

THE LAKE SHORE MINING COMPANY, Kirkland Lake, Ontario, has ordered one 30-cu. yd., air dump car from the National Steel Car Corporation.

THE UNITED STATES POTASH COMPANY.—An order for 12 gable bottom cars of 25 tons' capacity has been given to the Magor Car Corporation. This order was placed by C. C. Moore & Co., San Francisco, Cal., for the United States Potash Company.

IRON & STEEL

THE NEW YORK CENTRAL will receive bids until 12 o'clock noon, September 29, covering its requirements of steel bars, steel shapes, steel plates, etc., for the fourth quarter of 1932. C. C. Warne, purchasing agent, New York, will receive the bids.

THE DELAWARE, LACKAWANNA & WESTERN has ordered 50 tons of steel from the American Bridge Company for an extension to the superstructure of pier 68, North river, New York.

ERIE.—Bids have been received by Senior & Palmer, Inc., New York, for 175 tons of structural steel and 50 tons of reinforcing bars. This company has a contract for building a bridge for the Erie at Ramsey, N. J.

MOTOR COACHES

THE CHICAGO, BURLINGTON & QUINCY has received one Type V, 29-passenger observation coach from the General Motors Truck Company, Pontiac, Mich. It will be operated by the Burlington Transportation Company, subsidiary of the railway.

SIGNALING

CHICAGO, BURLINGTON & QUINCY.—The Interstate Commerce Commission has assigned this company's petition for relief from the requirement of continued maintenance and operation of automatic train control for hearing at Washington on September 22 before Commissioner McManamy.

CHICAGO, ROCK ISLAND & PACIFIC.—This company has petitioned the Interstate Commerce Commission to be relieved of the requirement of further maintenance and operation of automatic train control of its Iowa division between Davenport, Ia., and Des Moines, stating that the cost of maintenance and operation in 1931 was $32,951 and that the money can be expended to better advantage in other ways.

THE PENNSYLVANIA has ordered from the Union Switch & Signal Company material for the installation of a centralized traffic control system on its line approaching the new passenger terminal at Cincinnati, Ohio; and the system also will govern movements of freight trains to and from the Undercliff yards. The control machine will be located at Clare and will govern two main groups of functions; 11 switches and 15 signals in the vicinity of Rendcomb Junction, and 5 switches and 13 signals at East Norwood, the latter point being five miles from the control station. Position-light signals will be used throughout.

MISCELLANEOUS

The Central of New Jersey Plans to Recall 460 Men to Work

The Central of New Jersey will make application to the Reconstruction Finance Corporation for a work loan for the purpose of repairing locomotives, cars and marine equipment. While the equipment is not immediately needed to meet traffic conditions, the management intends to undertake the work at this time, and in this manner, in order to increase employment and aid in stimulating business activity. If the loan is secured, approximately 460 men will be recalled to work beginning October first.

Supply Trade

The Champion Rivet Company, Cleveland, Ohio, plans henceforth to manufacture welding rods in addition to its regular line of rivets.

V. E. Rennix, formerly connected with the **Baldwin Locomotive Works** at Philadelphia, Pa., has been appointed sales representative of the same company, with headquarters at Chicago.

The Peerless Equipment Company, 230 Park avenue, New York and 310 South Michigan avenue, Chicago, has acquired the railroad sales rights to the Hennessy mechanical journal lubricator. This device was described in the Railway Mechanical Engineer of June, 1932, page 251.

Frank L. Gibbons has been appointed director of steel sales of the **Timken Steel & Tube Company,** Canton, Ohio. Mr. Gibbons has been associated with various alloy steel manufacturers in sales capacities since 1914, when he was with the Carbon Steel Company. He then engaged in sales work in Pittsburgh, Cleveland, Detroit and Massillon with the Central Steel Company and the Central Alloy Company. He now leaves the service of the Republic Steel Corporation, with which he has been connected since its merger with the Central Alloy Company.

The American Throttle Company, Inc., New York, has acquired the patents and facilities of The Bradford Corporation, New York, pertaining to steam locomotive throttle valves, locomotive shut-off valves and steam separators. Through its regular engineering, inspection and service organizations, the American Throttle Company will conduct the further application of front-end throttles, both of the multiple-valve type and single-valve type, and also dome throttles. Repair parts for all types of throttles, shut-off valves and steam separators, previously manufactured by The Bradford Corporation, are now available through the American Throttle Company.

Construction

CANADIAN PACIFIC.—This company has awarded to E. P. Muntz, Ltd., a contract for excavation and substructure work in connection with a subway to carry the Ontario King's highway under the railroad tracks at Norwood, Ont. Work has been started recently by Kendall Bros., Ltd., contractors, on the construction of a $165,000 subway to carry Cote des Neiges road, Montreal, Que., under C. P. R. tracks.

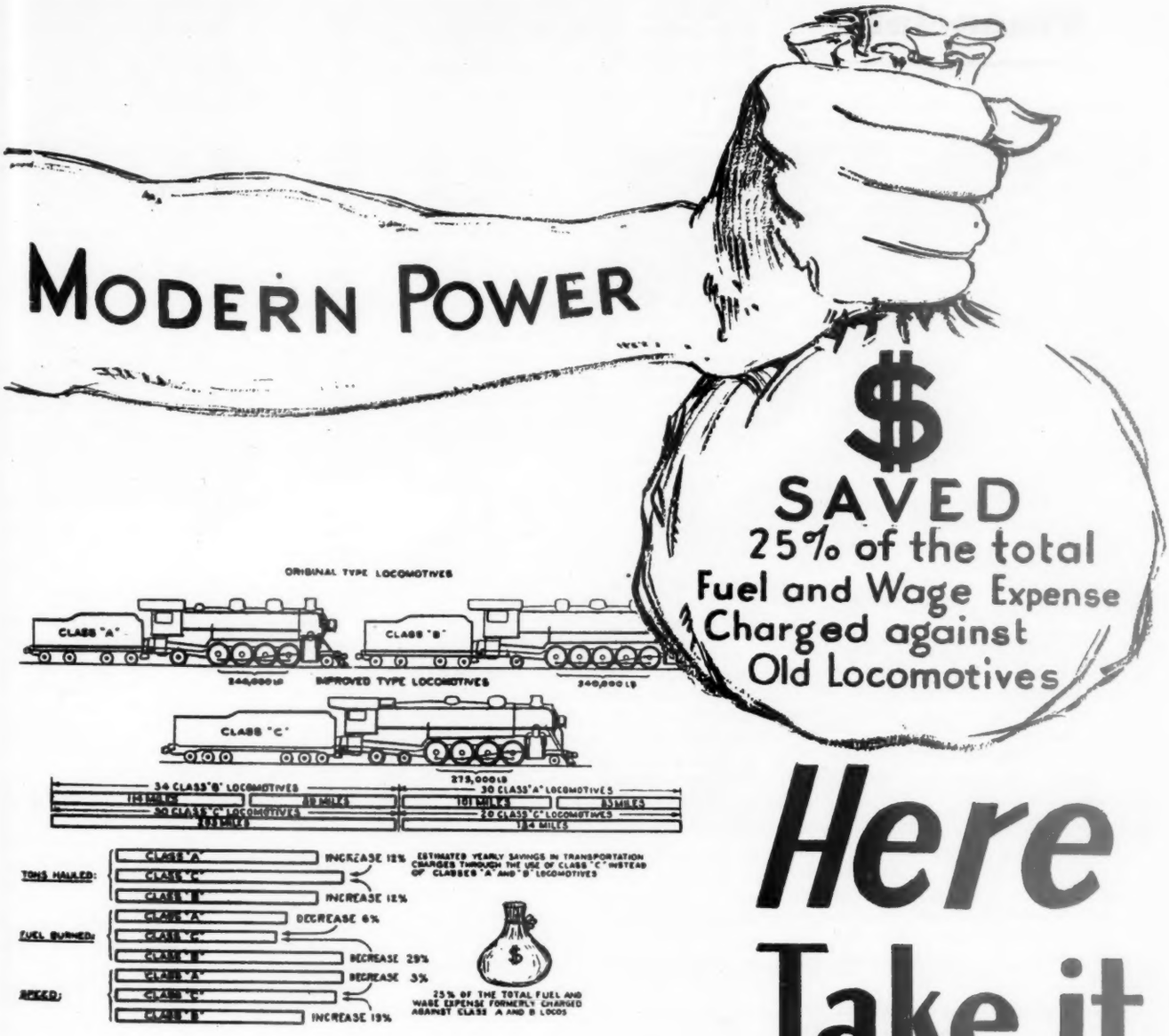
ERIE.—A contract has been given by this road to Senior & Palmer, Inc., New York, to build a bridge at Ramsey, N. J.

MISSOURI-KANSAS-TEXAS.—A contract has been awarded to C. I. Stafford & Sons and D. R. Campbell, Springfield, Mo., for extensive alterations and additions to this company's stockyard facilities at Muskogee, Okla.

NEW ORLEANS PUBLIC BELT.—Application has been made to the Reconstruction Finance Corporation for funds for the construction of the Public Belt combination railroad and highway bridge across the Mississippi river at New Orleans, La., which is estimated to cost about $19,000,000. Contracts for this project were allotted last year and plans have been made to commence the work as soon as sufficient funds are available.

NORTHERN PACIFIC.—A contract has been awarded to the Ogle Construction Company, Chicago, for the installation of machinery for a coaling station having an overhead storage capacity of 100 tons at Yakima, Wash. This project is being undertaken in connection with the removal of certain divisional facilities from Ellensburg, Wash., to Yakima. The remainder of the work in connection with the construction of the coaling station is being undertaken by company forces.

Continued on next left-hand page



Here Take it

To Economize Modernize

IT'S yours if you modernize.

The above chart represents a typical example of how one railroad saved 25 per cent in transportation expense by modernizing.

Here are the facts. 30 locomotives designated as Class "A" were in freight service on divisions of 101, and 83 miles; 34 locomotives designated as class "B" were in service on adjacent divisions of 114 and 89 miles respectively. 50 modern locomotives, designated as class "C", replaced 64 older locomotives and handled increased tonnage, on faster schedule and with longer engine runs over two divisions combined, at a saving of 25 per cent in transportation expense. This does not include savings in maintenance and terminal expenses.

A 25 per cent saving in these days or any other days, is big enough to justify a thorough examination of your equipment.

Modernize—it is one sure means of securing larger profits from a smaller volume of business.

Cost reduction is always a sound investment.

American Locomotive Company
30 Church Street New York N.Y.

Financial

AROOSTOOK VALLEY.—*Bonds.*—The Interstate Commerce Commission has authorized this company to issue $500,000 of first and refunding mortgage 5½ per cent bonds to be sold or otherwise disposed of at not less than 94 and the proceeds or bonds used to retire maturing issues and reimburse its treasury for capital expenditures.

ARLINGTON & FAIRFAX.—*R.F.C. Loan.*—This company has filed with the Interstate Commerce Commission and the Reconstruction Finance Corporation a new application for a loan of $11,300 to pay interest, taxes, and an open account. The commission had previously declined to approve applications for $25,000 and $18,000, respectively.

CHICAGO & ALTON.—*Final Valuation.*—The Interstate Commerce Commission has issued its final valuation report as of 1919 finding the value for rate-making purposes of the property owned and used for common-carrier purposes to be $53,954,000 and that of the property used but not owned to be $22,682,966. The book investment in road and equipment, including land, was $119,958,671. If readjusted to conform with the commission's classification of accounts, the report said, this would be reduced to $117,232,114. The outstanding capitalization as of valuation date was $125,224,497.

CHICAGO, INDIANAPOLIS & LOUISVILLE.—*Note.*—This company has applied to the Interstate Commerce Commission for authority to issue a promissory note for $750,000 to renew a bank loan and to pledge as collateral $2,255,000 of first and general mortgage 6 per cent bonds and $223,000 of 5 per cent bonds.

DENVER & RIO GRANDE WESTERN.—*R.F.C. Loan for Dotsero Cut-Off.*—The Interstate Commerce Commission has approved an additional loan to this company from the Reconstruction Finance Corporation of $3,850,000 for the acquisition of control of the Denver & Salt Lake Western and for the construction of its line, the Dotsero cut-off, to connect the line of the Denver & Salt Lake, including the Moffatt tunnel, with that of the D. & R. G. W. The company had applied for $4,000,000, including an amount to meet expenses incident to certain proposed trackage and other agreements with the Denver & Salt Lake. The commission had previously approved loans of $2,500,000 to this company, of which $500,000 has been repaid by the Railroad Credit Corporation. At the same time the commission modified one of the conditions it has imposed when it authorized the D. & R. G. W. to acquire control of the Denver & Salt Lake under which the D. & R. G. W. would have been required to purchase the minority stock of the D. & S. L. by September 15. Under the modification any holder of stock or voting trust certificates of the D. & S. L., may deposit such stock or certificates for purchase by the D. & R. G. W., on the basis of $155 a share during the period July 1, 1934, to December 31, 1934, and the D. & R. G. W. is to purchase the stock or certificates so deposited on or before July 1, 1935, under the conditions of an agreement reached with the stockholders. Under this plan the Rio Grande company will, within 40 days, deposit with the Colorado National Bank of Denver, as trustee, shares of stock of the Salt Lake company equal in number to the shares held by the minority stockholders, the stock to be held by the trustee as security for an option by any minority stockholder to tender his stock for purchase. If purchase is not made immediately following deposit the Rio Grande company will agree to purchase the tendered stock by July 1, 1935, or that, in the event of default, the trustee will deliver to the vendor the stock deposited by him together with that deposited by the Rio Grande company, the latter as liquidated damages.

GAINESVILLE MIDLAND.—*R.F.C. Loan.*—The receiver has applied for a loan of $55,105 from the Reconstruction Finance Corporation to reimburse the treasury of the receiver for expenditures.

GENESEE & WYOMING VALLEY.—*Bonds.*—The Interstate Commerce Commission has authorized this company to issue a promissory note for $275,000 in part renewal of an outstanding note and to pledge as collateral therefor $400,000 of 5 per cent first mortgage bonds.

GULF, MOBILE & NORTHERN.—*R.F.C. Loan.*—This company has filed a supplemental application for an additional loan of $361,750 from the Reconstruction Finance Corporation to meet interest charges due October 1 and to provide funds needed in connection with the plan of reorganization of the New Orleans Great Northern.

NEW YORK CENTRAL.—*Abandonment.*—This company and the Michigan Central have applied to the Interstate Commerce Commission for authority for the abandonment of a branch line of the latter company from Grayling, Mich., to Lewiston, 27.3 miles.

NEW YORK, CHICAGO & ST. LOUIS.—*R.F.C. Loan.*—A further loan of $6,800,000 to this company from the Reconstruction Finance Corporation was approved by Division 4 of the Interstate Commerce Commission, consisting of Commissioners Aitchison, Eastman, McManamy, and Brainerd, on September 10. This is in addition to $11,400,000 of loans previously approved for this company, of which $2,600,000 has been taken over by the Railroad Credit Corporation. The new loan is for the purpose of paying fixed charges due October 1 to the amount of $1,783,135, taxes to the amount of $16,865, and one-quarter of the principal of the $20,000,000 of 6 per cent gold notes maturing October 1, on condition that the holders of substantially all of the notes will extend 75 per cent of the principal for a term of not less than three years. The Company had desired to pay the notes in full in cash, or at least half of the amount, from a loan, and on August 30 had filed a supplemental application for $22,400,000 for the purpose, including also $630,853 for additions and betterments, but offered no additional collateral for the further loan. After reviewing the collateral already pledged for the government loans the commission declined to approve the amount asked for additions and betterments and approved only one-fourth of the amount needed to pay the notes. In several other cases it has approved one-half of the amount needed.

NEW YORK, NEW HAVEN & HARTFORD.—*Abandonment of Operation.*—The Interstate Commerce Commission has authorized this company to abandon the operation of portions of the Hartford & Connecticut Western, aggregating 36 miles, in Dutchess and Columbia Counties, N. Y., and Litchfield and Hartford counties, Conn.

PERE MARQUETTE.—*Abandonment.*—This company has applied to the Interstate Commerce Commission for authority to abandon a branch line from Haynor, Mich., to Stanton, 19.46 miles.

SOUTHERN.—*Abandonment.*—This company has applied to the Interstate Commerce Commission for authority to abandon operation of the Claremont branch of the Atlantic & Danville, extending from James River Junction, Va., northeasterly 50.42 miles to Claremont Wharf on the James river.

ST. LOUIS-SAN FRANCISCO.—*Receivership.*—A hearing on a motion to dismiss the receivership suit brought against the Frisco by Dora R. and Charles Gans, Baltimore, Md., holders of $3,500 of prior lien bonds of the railroad, was held before United States District Judge Faris at St. Louis, Mo., on September 9, counsel for the plaintiffs being given a week in which to file briefs. In answering charges that the financial readjustment plan for the railroad is unfair and unreasonable and charges of overcapitalization, Frank W. Carter, counsel for the defense, contended that the Interstate Commerce Commission must determine at a hearing whether the readjustment plan is fair. He also pointed out that "in times like these greater caution than usual should be shown by courts in appointing receivers." He denied that the officers of the Frisco should be blamed for their failure to foresee the general business depression and contended that the court would not be justified in plunging the road into receivership on the complaint of the holders of but $3,500 in bonds, while other bondholders, having many millions of dollars invested, are co-operating to straighten out the road's difficulties.

WISCONSIN CENTRAL.—*Abandonment.*—This company has applied to the Interstate Commerce Commission for authority to abandon its line from Athens, Wis., to Goodrich, 10.55 miles.

WILLIAMSPORT & NORTH BRANCH.—*R.F.C. Loan Denied.*—The Interstate Commerce Commission has denied approval of this company's application for a loan of $17,000 from the Reconstruc-

Continued on next left-hand page

DON'T HANDICAP HIGH PRESSURES BY OLD MATERIALS

Higher pressures and higher temperatures introduce new stresses within the locomotive. « Old materials must give way to special alloys having lower thermal expansion and high heat resistance and creep strength —alloys that are competent to deal with any local over-heating that may occur. « Republic metallurgists have been studying this problem and have developed special alloys that have proved in service their ability to withstand the increased temperatures and pressures. They will be glad to consult with you on this or any other materials problem.

Toncan Iron Boiler Tubes, Pipe, Plates, Culverts, Rivets, Staybolts, Tender Plates and Firebox Sheets • Sheets and Strip for special railroad purposes Agathon Alloy Steels for Locomotive Parts • Agathon Engine Bolt Steel • Nitralloy • Agathon Iron for pins and bushings Agathon Staybolt Iron • Climax Steel Staybolts • Upson Bolts and Nuts • Track Material, Maney Guard Rail Assemblies Enduro Stainless Steel for dining car equipment, for refrigeration cars and for firebox sheets • Agathon Nickel Forging Steel (20-27 Carbon)

TONCAN COPPER Mo-lyb-den-um IRON

AGATHON NICKEL IRON

The Birdsboro Steel Foundry & Machine Company of Birdsboro, Penna., has manufactured and is prepared to supply under license, Toncan Copper Molybdenum Iron castings for locomotives.

CENTRAL ALLOY DIVISION

REPUBLIC STEEL CORPORATION

MASSILLON OHIO

tion Finance Corporation, stating that its financial embarrassment is "due to causes other than the present financial depression which we believe the act was intended to bridge" and that the security offered is not such as to afford reasonable assurance of ability to repay the loan. The company had reduced the amount of its application by eliminating an item of $39,943.

Dividends Declared

Alabama & Vicksburg.—3 per cent, semi-annually, payable October 1 to holders of record September 8.

Cincinnati Union Terminal.—5 Per Cent Preferred, 1¼ per cent, quarterly, payable October 1 to holders of record September 19.

Joliet & Chicago.—$1.75, quarterly, payable October 3 to holders of record September 22.

New London Northern.—$2.25, quarterly, payable October 1 to holders of record September 15.

Vicksburg Shreveport & Pacific.—Common, 2½ per cent, semi-annually; Preferred, 2½ per cent, semi-annually, both payable October 1 to holders of record September 8.

Average Prices of Stocks and of Bonds

	Sept. 13	Last week	Last year
Average price of 20 representative railway stocks..	27.55	32.49	49.77
Average price of 20 representative railway bonds..	65.19	67.74	84.07

Railway Officers

FINANCIAL, LEGAL AND ACCOUNTING

J. S. McNamara, assistant auditor of the Georgia, Southwestern & Gulf, has been appointed acting auditor and treasurer following the death of **J. H. Conley.**

EXECUTIVE

W. K. Etter, general manager of the Coast lines of the Atchison, Topeka & Santa Fe, with headquarters at Los Angeles, Cal., has been elected vice-president, operation, of the system, with headquarters at Chicago, succeeding **Arthur G. Wells,** deceased.

As announced in the September 10 issue of *Railway Age,* page 379, the following officers of the Canadian National, retired on pension, effective September 1: **G. F. Ancrum,** treasurer, Montreal, Que.; **W. LeB. Ross,** treasurer, Winnipeg, Man.; **W. C. Tomkins,** treasurer, Detroit, Mich. Mr. Ancrum entered the service of the Grand Trunk (now the C. N. R.) at Montreal in 1888. Four years later he was transferred to the treasurer's department. In 1903, he was appointed relieving paymaster, and in 1914, Mr. Ancrum was appointed chief clerk in the treasury department. In 1920, he was appointed assistant to the treasurer, and two years later he became assistant treasurer. In 1923, Mr. Ancrum was advanced to treasurer, which duties he relinquished upon his retirement.

Mr. Ross was born in Ottawa in 1868, and in 1887, he entered railway service as clerk in the audit office of the Canada Atlantic, now part of the C. N. R. After serving in various capacities at Ottawa, Mr. Ross became local treasurer of the Grand Trunk at Winnipeg in 1905, and in 1920 he was appointed to continue in the same capacity with the C. N. R. In 1923, Mr. Ross was advanced to treasurer of the western region, with office at Winnipeg, the position he held until his retirement.

Mr. Tomkins was born in Montreal in 1871, and commenced railway work in the auditor's office of the Grand Trunk as junior clerk in 1885. After serving in various capacities in Montreal, he became assistant to the vice-president in charge of finance and accounting in 1914, and was appointed local treasurer at Detroit in 1917. In 1931, Mr. Tomkins was appointed secretary-treasurer at Detroit.

Following the resignation of **John W. Redmond,** vice-president and general counsel of the Central Vermont, the latter position has been abolished and Mr. Redmond, although retired from active service, will continue to serve as corporate vice-president and as a member of the board of directors. He was born in Charlotte, Vt., on January 24, 1861, and was educated at St. Johnsbury

John W. Redmond

Academy and the University of Vermont, at Burlington. After graduation from the University of Vermont in 1886, Mr. Redmond became interested in educational matters. He served as county examiner of Lamoille County from 1886 to 1891, inclusive, and in 1906, he was appointed chairman of the Vermont Public Service Commission, serving as head of that board until 1913. Mr. Redmond was appointed reporter of decisions of the Supreme Court of Vermont in 1904, holding that office until he became associated with the Central Vermont as general counsel in 1915. At the time of the Vermont flood in 1927, Mr. Redmond was appointed as one of the receivers of the Central Vermont. Upon the organization of the new company, he was named as a director and in 1930 he was elected general counsel. Mr. Redmond was elected vice-president in addition to his duties as general counsel and director at the 1931 annual meeting.

OPERATING

J. J. Franco, general superintendent of the Southern division of the National Railways of Mexico, with headquarters at Mexico, D. F., has had his jurisdiction extended over the Northern division, and now has supervision over the entire system with the duties of general manager. The position of general superintendent of the Northern division has been held by **D. S. Alonso,** with headquarters at Monterrey, N. L.

MECHANICAL

J. Pfeiffer, superintendent of motive power of the Ft. Worth & Denver City, has had his headquarters transferred from Ft. Worth, Tex., to Childress.

TRAFFIC

F. E. Landmeier, special passenger agent for the Chesapeake & Ohio at Cincinnati, Ohio, has been appointed to the newly-created position of southwestern passenger agent, with headquarters at Dallas, Tex.

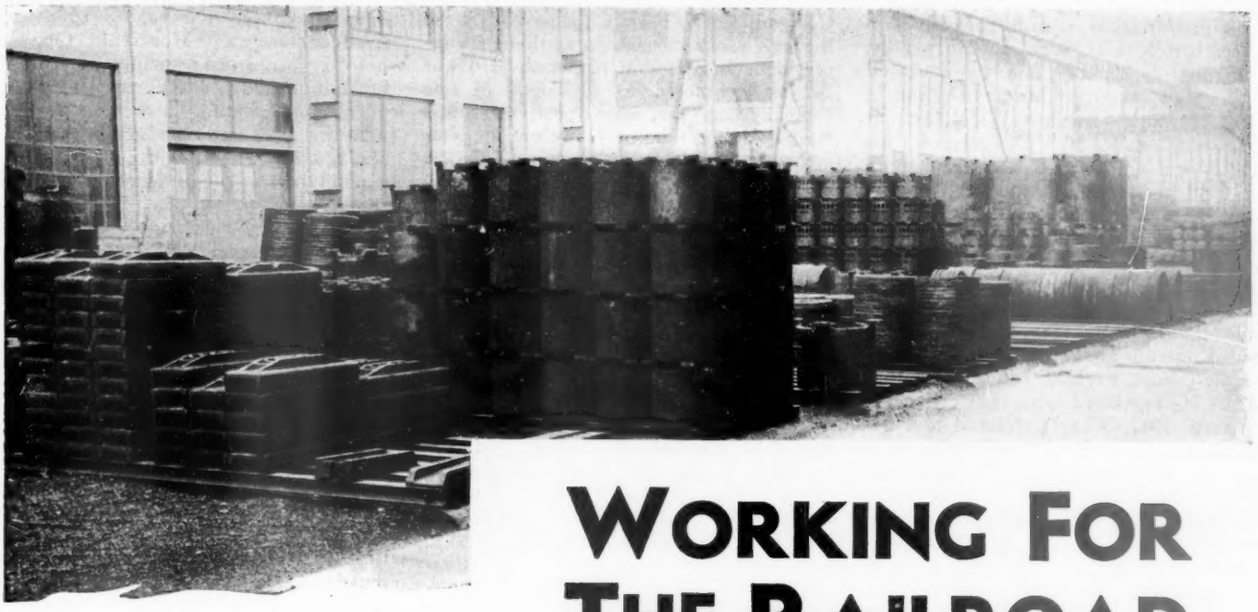
R. S. Sneed, general agent for the Chicago & Illinois Midland, with headquarters at Cincinnati, Ohio, has been transferred to the newly-created position of general agent at St. Louis, Mo., and the position of general agent at Cincinnati has been abolished.

Dick T. Lawrence, chairman of the Official Classification Committee, has been elected chairman of the Traffic

Dick T. Lawrence

Executive Association—Eastern Territory, and of the Trunk Line Association, with headquarters as before at New York. He succeeds **Robert N. Collyer,** whose death was reported in the *Railway Age* of August 6. Mr. Lawrence, whose

Continued on next-left hand page



WORKING FOR THE RAILROAD

WHY not start HUNT-SPILLER *Air Furnace* GUN IRON working for your railroad? There'll be less labor expended for replacements—you'll get greater mileage between renewals—and locomotives will retain maximum efficiency much longer when parts subjected to intense wearing stresses are made of this special and wear-resisting iron.

Select materials that work for—and not against the interests of your road!

HUNT-SPILLER *Air Furnace* GUN IRON has thoroughly demonstrated its ability for many years—it's a standardized material on practically all roads where materials, as well as men, are expected to do their part.

HSGI
Reg. U. S. Trade Mark

Cylinder Bushings
Cylinder Packing Rings
Pistons or Piston Bull Rings
Valve Bushings
Valve Packing Rings
Valve Bull Rings
Crosshead Shoes
Hub Liners
Shoes and Wedges
Floating Rod Bushings

Parts Finished for Application

Dunbar Sectional Type Packing
Duplex Sectional Type Packing
(Duplex Springs for Above Sectional Packing)
Cylinder Snap Rings
Valve Rings All Shapes

HUNT-SPILLER MFG. CORPORATION
J. G. Platt, Pres. & Gen. Mgr. V. W. Ellet, Vice-President

Office & Works
383 Dorchester Ave. South Boston, 27, Mass.
Canadian Representative: Joseph Robb & Co., Ltd., 997 Aqueduct St., Montreal, P. Q.
Export Agent for Latin America:
International Rwy. Supply Co., 30 Church Street, New York, N. Y.

HUNT-SPILLER *Air Furnace* GUN IRON

new appointments became effective on September 1, was born at Marysville, Ohio, on July 20, 1871, and was educated in the high school at Marysville and in the Eastman Business College at Poughkeepsie, N. Y. He entered railway service in 1890 as a stenographer on the Central New England & Western (now part of the New York, New Haven & Hartford), and two years later was transferred to Hartford, Conn., as a clerk in the general freight office of the same company. Later in the same year (1892), he became a clerk in the New England agency of the National Dispatch Fast Freight Line at Boston, Mass. He remained with that organization until 1911, being promoted to New England agent at Boston in 1899 and to manager at Buffalo, N. Y., in 1903, retaining the latter position when the manager's office was moved to Boston four years later. In 1911 Mr. Lawrence entered the service of the Central Vermont as general freight agent at St. Albans, Vt., becoming a member of the Official Classification Committee at New York in 1915. In 1920 he became general freight agent of the Delaware, Lackawanna & Western, with headquarters at New York, and in 1926 he was appointed chairman of the Official Classification Committee, which position he held until his recent election as head of the Trunk Line and Traffic Executive Associations.

F. S. Pfahler, president of the Superior Coal Company, Chicago, has been appointed to the newly-created position of coal traffic manager of the Chicago & North Western, with headquarters at Chicago. Mr. Pfahler will continue as head of the coal company. He was born at North McGregor, Iowa, in 1883, and studied engineering for two years at the University of Wisconsin. In

F. S. Pfahler

1903, after leaving school, Mr. Pfahler entered the service of the Chicago, Burlington & Quincy, where he worked in the engineering department for three years. At the end of that time he left railway service to go with the Southern Coal, Coke & Mining Company at Belleville, Ill., where he was also connected with the engineering department. In 1917, he went with the Superior Coal Company at Chicago, being advanced through various positions to that of vice-president and general manager. He was further promoted to president of the company last year, which position he was holding at the time of his recent appointment as coal traffic manager of the North Western.

ENGINEERING AND SIGNALING

A. F. Stewart, chief engineer of the Atlantic region of the Canadian National, retired effective September 1. Mr. Stewart, who was a native of Cape Breton, Nova Scotia began his railroad career in the state of Maine in 1887. Later he returned to Canada and was engaged in various engineering capacities in the east and west, after which he went to South Africa to engage in railway construction work there. In 1902, following the close of the Boer War, he returned to Canada and took charge of a survey part on the building of an extension of the Halifax & Southwestern, serving the south shore of Nova Scotia, now part of the C. N. R. On the completion of this work he again went to South Africa where he was employed for a time with the government railways there. In 1909, he returned to Canada to undertake the position of chief engineer of the Canadian Northern with jurisdiction over lines east of Port Arthur, Ont., and during this time he was connected with the building of the Canadian Northern lines east of the Great Lakes. Upon the consolidation of the Canadian Northern and Canadian Government railways into the C. N. R., in 1920, Mr. Stewart was appointed chief engineer of the lines east of Montreal, with headquarters at Moncton. On the creation of the Atlantic region in 1923, Mr. Stewart was appointed regional chief engineer.

PURCHASES AND STORES

D. McK. Ford, assistant to the vice-president in charge of purchases & stores, of the Canadian National, has been appointed purchasing agent with headquarters at Montreal, Que., as before. Mr. Ford's former position has been abolished. The position of general purchasing agent, which was formerly held by the late **L. Lavoie** has been abolished. The position of assistant general fuel agent at Montreal, has been abolished, and **A. L. Graburn,** who formerly held that position, has been transferred to Toronto, Ont., as fuel agent, succeeding **C. E. Jones,** who has retired. **F. W. Hargrave,** formerly assistant purchasing agent at Montreal, has retired, and this position has been abolished. **T. Duff Smith** has retired from the position of forwarding agent at Cleveland. This position has been abolished and the work transferred to another office. **J. B. Parkin,** tie agent at Winnipeg, **J. C. Stewart,** tie agent at Moncton, and the late **A. R. Thompson,** tie agent at Toronto retired a short time ago. At Moncton and Winnipeg the duties of tie agent were taken over by the local fuel agent with the title of fuel and tie agent. The position of tie agent at Toronto has been abolished.

SPECIAL

C. J. Birchfield, assistant general advertising agent of the Atchison, Topeka & Santa Fe, has had his title changed to advertising manager, with headquarters as before at Chicago.

OBITUARY

J. H. Conley, auditor and treasurer of the Georgia, Southwestern & Gulf, with headquarters at Albany, Ga., died on September 8.

E. C. Wight, assistant general freight agent of the Baltimore & Ohio, died at his home in Baltimore, Md., on September 2, at the age of 49.

George B. Smith, at one time president of the Erie & Wyoming Valley (now part of the Erie), died at New Haven, Conn., on September 2, at the age of 79.

* * * *

Five of the P5 High-Speed Electric Passenger Locomotives for the Pennsylvania in the Test Yard of the General Electric Company at Erie, Pa.